Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

SHOUT
SHARE
IT

THE

CULTIVATOR,

A MONTHLY PUBLICATION,

DESIGNED TO

IMPROVE THE SOIL AND THE MIND.

INDUSTRY.
ART
&
SCIENCE
CULTIVATOR
SCIENCE

CONDUCTED BY J. BUEL.

VOL. III.

ALBANY:
FROM THE STEAM PRESS OF PACKARD AND VAN BENTHUYSEN.
....
1836–7.

INDEX TO VOLUME III.

A. *Page.*

Agriculture, obstacles which hinder its improvement, by X. Y. Z.. 54
its prosperity important to all classes, ... 89
reasons for its receiving legislative patronage, ... 185
a trade, an art and a science, ... 92, 171
deserves legislative encouragement, ... 153
of France, noticed, ... 109
Agricultural education recommended, ... 133
Society of N. York, officers and proceedings of, ... 17
report of corresponding secretary,.. 39
Royal and Central of France, ... 155
of Essex, Mass...... 79
convention of New-York, ... 6
its proceedings, ... 22
memorial to the legislature, ... 16
of Virginia, ... 6
address, of J. B. Yates, ... 17
knowledge importance of diffusing, by E. C. Delavan, ... 96
improvement in Scotland, ... 9
publications, their value, ... 50
school, act of incorporation, ... 57
premiums in Scotland, ... 74
of the farmers' society, ... 82
recommended by E. H. Smith, ... 181
statistics of Great-Britain, ... 75
museums, their utility, &c........ 107
report for 1836, ... 170
Apples, sour ones eaten by pigs, ... 61
preserved in peat earth, by S. Hawes, ... 66
their great value for farm stock, by E. Cady, 53
by G. Butler, ... 53
Apple orchards profitable to the farmer,. 173
American Institute, notice of its 9th anniversary, 173
An appeal to the farmers of New-York, ... 177
Artesian wells, ... 177
Alternating crops, recommended by W. Chapin, 97
one of the great principles of improved husbanory, ... 137
Artificial ponds, mode of constructing, ... 124
Autumn marrow, a valuable species of squash, 157
Angora goat, figured and described, ... 197

B.

Barns, their construction and winter management, by H. Whiting, ... 51
Barn door fastening, Burrall's,. 95
Ball, L. C. memoranda of his farming, ... 178
Bean and pea straw, good cattle food, ... 11
Botts in horses, how cured, by J. Foot, ... 9
do. by S. Haynes, ... 38
Bridgewater Treatises, notices of, and extracts from, ... 26
Bees, kept in cellar in winter, by C. C. Gray, 58
Butter, rules for making and preserving, ... 139
how to be packed and branded, ... 142
Beet sugar, its fabrication profitable, ... 77
on its manufacture in France, by Le Ray de Chaumont, ... 80
its extent and importance in France,.. 90, 148
interesting facts in relation to, ... 123
remarks of H. Hawley upon, ... 158
facts in relation to, ... 168
further remarks on, ... 188
Beef, how packed for exportation, ... 141

C.

Cow, the products of a superior one noticed,.. 191
Cultivator, address on commencing 3d volume, 1
its circulation, ... 9
Bement's, ... 179
Conkling, Alfred, author of Young Citizen's Manual, ... 4
Clover, mode of culture and curing, ... 12
time of sowing in N. Carolina, by S. Wilbur, 144
Cattle, large flocks in Ohio, ... 32
remarks on their winter feeding, by A. B. C. 200
sale of Col. Powell's short horns, ... 60
Cattle, how managed, by L. C. Ball, ... 196
thoughts on the feeding and fattening for market, ... 86
on the formation of, by Cline, ... 131
on the choice of, for breeding or feeding,.. 114
Cattle show, in Berkshire, ... 139
Cattle husbandry, hints of eminent breeders, &c........ 174, 195
Caloric, its properties and agency in vegetation, 46
Cato's maxims for farmers, ... 47
Cucumbers and melons, mode of raising upon a clay soil, by H. N. Fargo, ... 51
Chinck bug, described by T. A. W. Pleasants,. 54
Clay, beneficially given to cattle and sheep in winter, ... 65
Chemistry for farmers, by Prof. Renwick, ... 68
Cashmere goat, imported by Mr. Kinnear, ... 92
Crops, their deficiency noticed, ... 105, 125
Chess, remarks on, ... 105
on its transmutation, by P. S. P 142
by E. T. Smith, ... 143
by J. J. Wilson, ... 143
Corn sheller, Adriance's, described, ... 111
Maxwell's self-feeding, ... 179
Cut-worm and Hessian fly, remarks on, by W. P. Kinzer, ... 128
Corporate associations unnecessarily multiplied, 153
Corn fodder, advantages of cutting, ... 155
Chinese Indigo, seed of, introduced by Gen. Tallmadge, ... 156
Cotton, mode of its cultivation, by Agricola,... 158
Composts, experiments with, by M. P. Crowell, 159
remarks on the formation of, ... 193
Cheese, directions for making and preserving,. 166
Condensed articles, ... 176
Corn planter, Robbins', ... 39
Cuttings, mode of propagating by, ... 30
Currant jelly, how to make, ... 96
Calcareous sand, its valuable properties, ... 113
Chinese husbandry, facts in relation to, ... 190

D.

Dutton corn, commended by G. H. McCarter,. 9
described, ... 54
Dairy zone, defined, ... 41
Dutchess agriculture, well managed, ... 41
Draining, its advantages illustrated,... 49, 83, 137
Delavan, Edward C. his liberality exemplified, 89
Development of vegetables, ... 113
Drill barrow, Merchant's, described, ... 125
Division of labor, its advantages, ... 177

E.

Economy, public and private, by T. Sedgwick, 5
Education, female habits, by F, ... 97
its importance to farmers and mechanics, 121
Evergreens, proper time to transplant, ... 93
Everett, Gov. extracts from his address, ... 160
Economical method of keeping horses, ... 147
Exhausting and enriching tillage contrasted,... 146
Experiments, with ashes, gypsum, lime, &c... 156
Economy recommended in fodder, &c........ 125

F.

Flemish husbandry, notes upon, ... 1, 32
maxims in husbandry, ... 40
Farmers, urged to respect themselves, ... 7
Facts in Astronomy, ... 8
in Chemistry, ... 90
F. on sheep husbandry, No. 4, ... 14
Flax culture, directions for, ... 30
rotting, directions for, ... 192
Fodder, advantages of cutting, ... 79
Farmers. agricultural society, list of premiums offered by, ... 82
Farmer's School book noticed, ... 156
Farm accounts, products, &c. by Asa Carter,.. 199
their importance, ... 192
Female education commented on, ... 91
Fruits, new mode of preserving, ... 92, 194
Fences of stone & earth, directions for building, 106
Filtering cisterns, mode of constructing, ... 124
Fine arts at Geneva, ... 176
Fence posts, how to preserve, by G. Butler,.. 53
Foreign provisions, remarks on the repeal of the duty on, ... 187

G.

Gypsum, a specific food for some plants, ... 7
its beneficial effects, by J. F. Lindsley, ... 112
experiments with, by Colonus, ... 128
beds of, in west New-York, by S. J. B.... 36
discovered in Arcadia and Wheatland, 123
on the advantages of applying it to dunged meadows, by A. Johnston, ... 194
Grasses, an essay upon, ... 11, 33
of the cultivated kinds, ... 47
of the tall hay growing kinds, ... 47
for pasture, ... 2
table of, ... 63
Grass seed, C. H. Tomlinson's mode of sowing, 81
lands, hints in regard to top dressing, ... 125
Grape culture, hints in regard to the, ... 29
vines, mode of treating in Sicily, ... 79
Gardens, their utility in domestic economy, ... 45
Geological surveys, their value to agriculture,. 61
Grain worm, described by H. Greene,... 63
its depredations in 1836, ... 91
a kind described, by T. A. W. Plesants, 55
mischief done by it in G. Britain, ... 118
Grain, standard weight of, ... 79
mode of stacking, ... 94
and hay, cheap structure for the security of, 127
Gordon's Gazetteer of New-York, ... 139
Grub worm, its changes, by a Watervliet farmer, 145
Gate fastening, a new one described, ... 31
Grafting and budding, by S. Philips, ... 98
Garnet, J. M. his experiments in husbandry,.. 190
extracts from his address, ... 190

H.

Hot-beds, when to be constructed, ... 6
Household affairs, for housewives, ... 31, 45
Hay, rule for determining weight, by its bulk, 40
pressed, to be marked with seller's name, 142
advantages of curing in cock, by S. Johnson, 19
Hoven in cattle, cured by pearlash, by G. H. McCarty, ... 54
Harvest prospect in 1836, ... 73
Hay making remarks on, ... 78
by Prof. Low, ... 91
Hints to ploughmen, ... 79
Hops, picking, oasting and bagging, ... 101
Hop culture, its profits in Great Britain, ... 92
Horticulture, an outline of its first principles,. 155
Hints on grafting, ... 59
Hints on feeding horses, ... 191

I. & J.

Improved harrow, by G. Geddes, ... 10
Irrigation, not adapted to our condition, ... 25
Indian corn, P. Raybold's large crop, ... 34
cribs, G. Butler's mode of constructing, 53
remarks upon its culture, &c..... ... 44
D. Tomlinson's experiments with, ... 51
G. Butler's crop, ... 53
errors in managing seed, ... 47
advantage in cutting over topping, ... 176
Indian cakes, directions for making, ... 53
Improvement in tanning, ... 194
Jerusalem artichoke, ... 193

L.

Lime, M. Puvis on the use of, as a manure, 11, 54, 84, 100, 116, 149
no preventive of the turnip fly, by Colonus, 11
Layering, the process of described, ... 29
Largo crops down east, ... 30
Lucern, its culture and mode of consumption,. 33
Loading hay, directions for, by W. Gould,.. . 113
Live stock, hints for selecting, ... 114

CULTIVATOR INDEX.

Page.
Lard, how required to be packed and marked, 142
Labor beneficial to study, 174
Laboring classes, remarks on their improvement, 187

M.
Magazine of Horticulture recommended, 194
Mulberry, best soil and aspect for, 3
  native, remarks upon, 184
  modes of planting, 3
  white, A. Carter's nursery of, 47
  the species noticed, 73
  great numbers advertised, 157
Multicaulis, mode of managing in Belgium, 156
  remarks upon, 193
Mental stock, its value, 5
Mangold wurtzel, experiments in planting, by Colonus, 11
  directions for cultivating, 43
  C. H. Tomlinson's crop, 52
Marl, of New-Jersey, its fertilizing effects, 30
  remarks on, 59
  directions for analyzing, 60, 179
  its utility demonstrated, by C. G. McChesney, 64
  extract from Prof. Rogers' report upon, 64
  analysis of several specimens, 90
  its qualities and effects, 145, 161, 134
Mowing machine, Ambler's, described, 31
  Wilson's, described by S. Blydenburgh, 128
Midford's new plough, 79
Maxims of Sir William Jones, 87
Moors, how improved in Britain, 103
Meadow vs. Tillage, 130
Manures, their importance urged, 137
  the wealth of the farmer, 147
Memoranda, for improving husbandry, 137
Manual labor schools recommended, 172
Mineral poisons, 174
Madder, rules for cultivating, 72
  its extensive culture in France, 189
Maple sugar, directions for making good, 6
Melons, mode of raising in clay ground, 51

N.
Notes on farming—lime, marl, manuring, preserving wheat from smut, 27
  grape diet, on forcing the apple to fruit, the earths not food for plants, constituents of a good soil, timber, urine as a manure, the aphis, 28
New application of electricity, 147
New year's remarks, 169
New-Jersey husbandry, by E. H. Van Nuxen, 179
Notes to correspondents, *(see queries and ans.)* 177
Notes from my memorandum book—the turnip, gypsum, mosses, lichens and insects, urine, sap of plants, &c. &c. 192

O.
Ohio short horns, their character indicated, 130
  great sale of, 157
Osage orange, not hardy enough for northern winters, 146
Oats, G. Butler's mode of cultivating, 53
Objections to the repeal of the duty on foreign grain, &c 137

P.
Puvis, on the use of lime as a manure, 11, 54, 84, 100, 116, 149
Pasture grounds, remarks on their management, 38
Potatoe, hints for managing the crop, 44
  W. Johnson's experiments in the culture of, 50
  A. Crary's crop, 9
  experiments in planting, 78
  the Rohan, a remarkable species, 79, 134
  interesting facts in regard to its culture, 164, 182
  hoe, Thorp and Adams', 110
Pigs fattened on grain, by the Rev. Mr. Watson, 49
Planting trees, 77, 94, 108, 126
Pruning in summer recommended, 78
Political economy, a school-book, by Prof. McVickar, 92
Parsnips, their value as a field crop, 93
Peach, mode of propagating, 130
  worm, method of destroying, 156
Pennsylvania husbandry, practices in, 138
Pork, how to be packed and branded for exportation, 141
  directions for making, 148
Potash obtained from the beet, 176
Plants feed on plants, 189
Ploughing, interesting facts in regard to, 194
  advantages of lapping the furrow-slice, 79

Q. Page.
Queries and answers, in regard to clearing land, the influence of the moon upon vegetation, and of the sun upon man, 7
  in regard to sheep husbandry, 43
  respecting the culture of beans, 46
  in regard to the profitable management of a farm, 49
  in regard to Van Eps' cheap paint, 59
  in relation to the destruction of the weevil, 81
  to ground limestone, as a manure, 92
  to ribwort, the culture of barley and the culture of rape, 110
  in regard to the borer and to ants, 111
  in regard to marl, ground moles and to the cut-worm, 137
  in regard to using lime in composts, and to improving a worn-out farm, 141
  in regard to a cultivator, to a list of agricultural books, to fining cider, to quack, to trench ploughing, to a system of self-instruction, and to A. Brooks' silk spinner, 157
  in regard to stall feeding cattle, 178
  relative to seed of the morus multicaulis, by Amos David, 194
  in relation to the manufacture of cheese, by J. N. Smith, 194
  of Judge Goldsborough, in regard to shell manure, &c 194
  in regard to the new Flemish pears, by W. W. Bostwick, 195
  in regard to spring wheat, by M. Cope, 105
  in regard to bone manure, by D. Foot, 195

R.
Roads, common, suggestions in regard to, 5
  the evils of bad ones, 74
Road making, rules for, 154
Revolving press harrow, Conkling's, described, 32
  recommended, 90
Ruta baga, directions for cultivating, 58
  their value in feeding stock, by T. Midford, 53
  D. Fullerton's crop, 82
  when best to sow in North Carolina, by S. Wilbur, 144
Repository of the American Institute, 82
Root culture recommended, 137

S.
Silk business, preliminary remarks on, 2
  directions for managing, 11, 33
  remarks upon the, 193
Sheep, fat ones, noticed, 7
  unnamed disease described by a Hartwick correspondent, 10
  cure for the foot rot, by J. W. Jewet, 38
  cure for the scab, by U. Tracy, 51
    foot ail, by S. Adams, 66
  value of the pelt, the yolk, 67
  periodical decidence of wool and hair, the form of the wool and fibre, 87
  properties of wool, fineness, 99
  wool stapler, the influence of temperature, 100
  diseases and their remedies, 110
  old fashioned merinos recommended by A.B. 67
  pasture, 117
  South Downs described, 148
  Merinos, notice of, by N. Beckwith, 38
    by S. Adams, 66
  Spanish Merino vs. Saxon Merino, 42
  Merino vs. Saxon, by C. F. 52
    by A. B 67
  Saxon as hardy as Merino, by J. Noble, 80
  Saxon and Merino, character defended, by J. Grove, 197
  husbandry, by a subscriber, 158
    by R. Millard, 37
    Nos. 4, 5, and 6, by F. 13, 35, 52
  worms, mode of preventing injury from, 44
Salt, its importance to cattle, 28
Soil, directions for analyzing, 60
Summer drink, 79
Savings banks, their utility in the country, 81, 91
  by W. W. J. 52, 112
Smokey chimneys, how avoided, 86
Strawberries, remarks on their culture, 51
Straw cutters, remarks on, by Fair Play, 198
Straw cutter, Greene's, its advantages, by J. W. Douglass, 113
  Columbian, 140
  Firth's, by J. Fry, 144
Stall feeding, by A. B. C. 200

T. Page.
Threshing machine, Allen's, noticed, 198
Timber, free air preserves, confined air destroys, by T. Tomlinson, 51
Turnip drill, Bement's, described, 81
Turnips, relative weight, a criterion of their goodness, 93
Trees, recommended as bar posts, 92
Temperance, its effects in prolonging life, 110
The good of the whole, the good of each individual, 138
Tanning, improvement in, 194

U. & V.
Under-draining, its benefits to a potato crop, by A. Carey, 9
  its importance to health, 110
Vanderlyn's system of farming, 65
Va. husbandry, its defects, by W. S. Morton, 96

W.
Wheat, a new Italian spring variety, noticed by J. Hathaway, 51, 112
  foreign, large importations of, 156
  insects described, by E. Wilbur, 111
Woad, directions for its culture, 85
  cakes, their preparation, 102
Weevil, how expelled, by A. B. W. 111
West New-York, conductor's observations on, 121
Winter melons noticed, 157
"What have I learned?" 167
Winter stall feeding, 171
Who are the rogues? 173
Wheat-worm, its habits, by H. Greene, 65, 125

Y.
Young Citizen's Manual, recommended and extract from, 4
Yates, John B. his address before the N. Y. S. Agricultural Society, 17

YOUNG MEN'S DEPARTMENT.

Early impressions, self-education, education of the appetites, 88
Effects of culture, extract from the oration of the Rev. Mr. Kirk, 119
From a father to his son, education of females, education, 103
Hints to young farmers, 152, 167
Importance of education to Farmers, by H. Coleman, 14
Interesting facts in chemistry, 55, 93
Method in business, 55
Offices of the skin, 120
Of the necessity of understanding the principles of our own government, 183
On the use of history, by J. Ingham, 135
Our school houses, 152
Reciprocal action between the skin, &c. 136
What is education? 168

CUTS.

Fig. 1, Solar system, *Page* 8
2, Planets, 9
3 and 4, Improved harrow, 10
5, Human Stomach, 26
6, Propagation by layers, 29
7, Gate fastening, 31
8, Ambler's mowing machine, 31
9, Revolving press harrow, 32
10 to 15, Silk-worms, 33
16, Cocoon,—17, Moth, 34
18, Robbin's corn planter, 39
19, Saxon Merino Ram, 43
20, Turnip cutter, 59
21 to 26, Turnip culture, 59
27, Bement's turnip drill, 81
28 and 29, Diagrams of chimnies, 87
30 and 31, Grain stack, 95
32, Barn door fastening, 96
33 and 37, Stone fences, 106
34, 35, 36, Sod fences, 107
38, Adriance's corn sheller, 111
39, Artificial pond, 124
40, Filtering cistern, 125
41, Merchant's drill barrow, 125
42, Planting tools, 126
43, Wilson's mowing machine, 126
44, Columbian straw cutter, 140
45, South Down ram, 149
46, Maxwell's corn sheller, 180
47, Bement's cultivator, 180
48, Angora Goat, 197
49, Allen's threshing machine, 198

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

Vol. III. ALBANY, MARCH, 1836. No. 1.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.

J. BUEL, *Conductor.*

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—Judah Dobson, Philadelphia—Messrs. Hovey, Boston—George C. Thorburn and Alexander Smith, New-York, and Samuel S. Glenn, office of the National Intelligencer, Washington. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

OUR THIRD VOLUME

Commences with this number. We feel extremely grateful to the gentlemen who have assisted to give a high character to the *Cultivator*, by their communications; and the many who have contributed to extend its circulation, are no less entitled to our warmest thanks. We trust and believe, that they have *all* felt a high gratification in the consciousness, that they have done a substantial public good, and that this consciousness, to men of enlarged and philanthropic minds, is to them a greater source of pleasure, than any acknowledgments we can make to them. If we are right in this conclusion, any request on our part, that they will continue their useful labors, will be wholly superfluous.

The Cultivator was not established from pecuniary considerations. The object was truly to disseminate useful information, to the agricultural community, *in the cheapest possible form*, in order to increase the profits and respectability of agricultural labor.—It was hoped, that it might at least contribute to excite in the *youth* of our country, a desire to improve the mind as the readiest way to improve and render profitable the culture of the soil. In aiming at this object, our calculations were graduated in the outfit, too low; for, notwithstanding that the services of the conductors were gratuitous, the establishment, at the close of the first year, was more than five hundred dollars in debt. The second year, the advance of price has enabled us not only to extricate it from debt, but to afford a moderate compensation for its management. Although the subscriptions must necessarily be renewed at the commencement of each volume, the subscribers amounted, for the last year, to nearly 12,000. It is the intention of the conductor, to expend, in pictoral embellishments and illustrations, and in other improvements, any excess of means which may arise from increased subscriptions; and at all events to make the coming volume as valuable as the last.

We commence, in this number, several essays on interesting subjects, which we shall be obliged to continue, on account of their length, in several consecutive numbers. Of these, the treatise on lime, is one of the most valuable of the kind we have met with.—That on the silk business will be interesting to a great portion of our readers. The subject of grasses is one of universal interest, and the authorities from which we draw our facts, are of undisputed pre-eminence. The compend of Flemish Husbandry will be worth an attentive perusal, as it gives the practice of probably the best cultivated agricultural district in Europe, and will afford many hints serviceable in our practice. It will be remarked, that the analysis of the soil is always given, as determining the mode of culture, and rotation. The extracts in regard to Sheep Husbandry will be found valuable to all who are engaged in this department of husbandry. We have also in store for our readers, many valuable articles from Low, Chaptal and Loudon, suited to our husbandry. We promise, too, more attention to the young men's department; and, though last in the enumeration, not least in our regards, the floral and household departments of the ladies shall not escape our notice.—The works from which we extract the pith and marrow, would cost the reader a large sum, and some of them are either not accessible to the many or are beyond their means. From a computation we have made, we find that a volume of the Cultivator contains as much matter as five volumes of ordinary duodecimo, which sell at eight to ten shillings a volume. We have adopted the two column form in the page, the better to receive the cuts; though the matter is not thereby decreased, but will be rather increased, by the introduction of more small type than usual.

NOTES ON FLEMISH HUSBANDRY.

East and West Flanders, to whose agriculture our notes refer, is a district of flat open country, of about eighty miles by fifty, bounded north-west by the North Sea, north-east by Holland, south by French Flanders, and east by Dutch Brabant, lying between fifty deg. forty-five min. and fifty-one deg. twenty min. north latitude, the climate much resembling that of latitude forty to forty-two deg. here. The soil is of various qualities, but in general naturally poor and sandy, resembling, in no small degree, the maritime districts of New-Jersey and Long Island, and the sandy districts of Saratoga and the upper level on the Connecticut river. The country is intersected by canals, which serve to facilitate the transportation of manure from the cities and villages, of which there are many, and of farm produce to market. Notwithstanding the natural infertility of the soil, these provinces are made to yield the most abundant returns to agricultural labor. In the Low Countries, of which Flanders comprises a part, and in the valley of the Po, in Italy, agriculture first revived after the overthrow of the Roman empire, was reduced to system, received its earliest improvements, and probably still maintains an ascendency. The practices of such a country cannot but afford some useful hints to the farmers of our own.

The high commendation bestowed upon Flemish husbandry by Sir John Sinclair, induced the directors of the Farmer's Society in Ireland to commission the Rev. Thomas Radcliff to visit that country, and to report on the condition of its husbandry. It is from his report that we have drawn the facts which we are about to narrate.

Among the characteristics that distinguish Flemish husbandry, is the perfect pulverization of the soil, by frequent and deep ploughings, or by trenching;—the subjecting most of the lands to alternate husbandry;—the extensive culture of clover, of root crops, and tares, for soiling and winter feeding their cattle;—the careful extirpation of all weeds;—a remarkable attention to the saving, and a judicious application of manures, particularly of liquid manures;—the constant occupation of the ground with crops;—and a judicious rotation, varying in almost every district, on account of the difference in soil, and adopted and settled after long experience, such as is best suited to the local market—as will best repay the farmer's cost and toil by an abundant return—best cultivate the soil for a succeeding crop—best enrich it for the purpose of increasing fertility, and most effectually prevent, by judicious alternation, that natural disgust which even good soils manifest to reiterated sowings of the same description.

Our author has divided the country into eleven districts, distinguished by peculiarities of soil, and treated of each separately. We shall follow his arrangement, and quote whatever may seem calculated for our improvement.

District No. 1—Wheat soil, containing fifty-two and a half parts alumine, or clay; twenty-one silex or sand; nineteen carbonate of lime; and seven and a half oxyde of iron. This is the strongest and heaviest soil described. The crops which are cultivated in this district, are wheat, horse beans, winter and spring barley, oats, and partially potatoes and flax. The average product is, of wheat twenty-eight bushels, beans nineteen, barley forty-seven, oats fifty-nine bushels per English acre. There is sown per acre, two and a half bushels of wheat, four of beans, two and a half of barley and oats. Here fallows are resorted to. The rotation is so arranged as to have a root, bean or clover crop intervene between the wheat, barley and oat crops. A considerable portion of this district, laying at the mouth of a stream, has been reclaimed from the water by drains and embankments. Manure is applied to the fallow, upon which is sown wheat or winter barley after four ploughings—the subsequent crops receive but two. The practice is general to pickle their seed wheat in salt and water, with a proportion of Roman vitriol, to escape all malady in the ensuing crops.

Division No. 2—Turnip soil—Silex seventy-six; alumine eighteen; carbonate of lime four; oxyde of iron two—denominated a good loam. The crops in this district are, wheat upon manured fallow, clover top dressed with ashes, oats followed the same season with turnips, flax manured with urine—occasionally rye, tobacco, beans, hops and rape. The preparation of the soil for flax is scarcely to be surpassed by that of the neatest garden. The ground, after two or three ploughings and harrowings, is backed up in the centre, so as to leave it without any furrow. A heavy roller follows, the liquid manure is then spread equally, the ground again harrowed, the seed sown and harrowed in with a light wooden-toothed harrow, and the operation completed with the roller.

Liquid manure, universally used for flax, and often for clover, &c., consists of the urine of cattle, in which rape-cake has been dissolved, and in which the *vidanges* conveyed from the privies of towns and villages, have also been blended. This manure is collected in subterraneous vaults of brickwork, at the verge of the farm, adjoining the main road, or contiguous to the stables. They are generally forty feet long by fourteen wide, arched, with conveniences to fill and empty them. This manure is distributed in the fields by carts, or tonneaus, a large cask carried by two men, by means of poles, and scattered over the surface with shovels or long handled dishes. Two thousand five hundred gallons of this liquid are applied to an acre of flax.

Division 3—Rye soil—Silex eighty-four; alumine fourteen; oxyde of iron two;—somewhat similar to the preceding, but more abounding in sand; the crops much the same. Rape, manured with liquid manure, yields forty bushels of seed the acre, which sells for $82. The expense of manure, plants and labor about $33—leaving a profit to the cultivator of nearly $50. Rape belongs to the cabbage (brassica) family, and is cultivated principally for the oil expressed from its seeds. The oil is used in lamps, and for various domestic purposes, and the cakes, from which it is expressed, are employed, as already stated, as manure. We do not know that this plant has been cultivated in this country, although it seems it might be profitably. Should any one ask for information, we shall cheerfully hereafter detail the mode of culture, and of expressing and purifying the oil. The rents here average about $5.30, and the taxes $1.50 per acre. The liquid manure from forty-four head of cattle, upon one farm, sufficed to manure in the best manner twenty-one acres annually. Our Rev. author dwells with great emphasis upon this species of manure, and earnestly recommends it to the notice of his countrymen. The horses are in the finest condition. They perform all the farm labor. They are kept in the stable in the summer and winter. Their straw and hay is always cut, and *their grain always given to them in the form of meal,* and generally *mixed with their drink.* Their daily food, in winter, is fifteen pounds of hay, ten of straw, and eight of oats; in summer, clover is substituted for hay. In this way every grain of corn is converted into nutriment. A farmer will work fifty acres with two horses, and maintain them in excellent condition.

Division 4—Wheat soil—Silex sixty-three and a quarter; alumine thrirty-five; oxyde of iron three-fourths; carbonate of lime one-half; vegetable fibre one-half—a good sand loam. The crops and course here, are: 1. wheat with dung; 2. clover with ashes; 3. flax with urine; 4. wheat with short dung and sweepings; 5. potatoes with farmyard dung or night soil; 6. rye with urine; 7. rape seed with urine; 8. potatoes with dung; 9. wheat with manure; 10. clover with ashes; 11. oats without manure; 12. flax with urine; 13. wheat with dung; and 14. beans, beets or tobacco, with dung or rape-cake. Turnips are also grown, but are taken as a second crop, after rape, flax, wheat or rye.

The Clover crop, is managed most successfully; "indeed, upon the cultivation of this plant, hinges apparently, the whole of the farmer's prosperity. It is here, and every where, except when vetches are sown, the summer support of all his stock. Here are very few pastures. The clover cut and carried to well littered stalls, becomes an abundant source of manure of two descriptions—the urine being conducted, by proper channels, to the urine cisterns—and thus the cattle are made profitably subservient to the production of their own nourishment. Without clover, no man in Flanders would presume to call himself a farmer." When seed is to be taken, the first crop is used for soiling, after which the plants are permitted to mature their seed. The seed is threshed at the barn, and then sent to the mill to be cleaned, for which a time of frost is chosen. They seldom fail to roll their clover, and to manure it with ashes, at the rate of forty-five bushels to the acre.

Division No. 5—Potato soil—Silex sixty-five and a half; alumine thirty-two and a half; oxyde of iron two—inferior to the preceding. The crops flax, rye, potatoes, oats, buckwheat; secondary products, rape-seed, turnips, carrots, wheat and clover. In the best parts the rotation the same as in the preceding district; in the inferior ones rye is substituted for wheat; potatoes made to commence, and buckwheat to terminate the rotation.

Division No. 6—Rye soil—Silex ninety-one; alumine eight; oxyde of iron one—rich sandy loam. Chief products, wheat, rye, rape-seed, flax, oats, potatoes and buckwheat; secondary produce, turnips, clover and carrots. The rotation very similar to No. 2. Carrots are sown with oats, flax or rye. Where intended to be raised as a first crop, the ground is ploughed after harvest, which buries the stubble. It then lies till spring, when it is ploughed eleven or twelve inches deep, and about twenty tons of manure spread on the acre. The seed is sown broadcast, at the rate of three pounds per arce, and covered with a harrow, in the month of April. The produce is about one hundred and sixty bushels to the acre. About twenty-five pounds of carrots are given to a horse with oats, in twenty-four hours, in place of hay.

Average seed in divisions, 2, 3, 4, 5 and 6—wheat two bushels to the acre; rye one and one-fifth bushels; oats two and a half bushels; flax two bushels; rape one quart; potatoes fourteen and a half bushels. *Average produce*—Wheat twenty-three bushels the acre; rye twenty-eight bushels; oats fifty-two bushels; flax seed six and a half; rape thirty-two bushels; potatoes three hundred bushels; carrots one hundred and sixty-two bushels. Rent $4 to $5.75 per acre; land tax one-fifth of the rent; price of land $100 to $140 per acre; farms from seven to one hundred and seventy-five acres; labor eleven cents per day with board.

THE SILK BUSINESS.

We have promised to give directions for the culture of the mulberry, and the management of the silk-worm—and we shall now proceed to redeem our promise. In the meantime we will recommend, that every person who designs seriously to enter into the business, should either purchase one of the half dollar publications which have recently come from the press, or subscribe for one of the dollar periodicals, which are specially devoted to this business. Either of these will afford all the instructions, in a compact and handy form, necessary for the perfect management of the business. *We* shall be obliged to be somewhat brief; for were we to publish all that is written upon this subject, it would engross our whole paper.

We will remark in the outset, that we do not doubt but the silk business will succeed in our country, and that it will ultimately become a matter of great national concern. Yet we believe that many who embark in it will fail to realize their golden dreams; and that when the fever has passed its crisis, it will be found to depend for success, like every other money making undertaking, upon the knowledge, prudence and economy with which it is managed. We are an enthusiastic, and often an inconsiderate and fickle people. When the fever of public feeling is excited upon any great subject, be it turnpikes, banks, canals, rail-roads, or the culture of silk, we are apt, for want of prudence and forethought, to permit it to assume a dangerous type, that baffles the counsels of reason, and some times terminates in extreme lassitude and prostration of strength. Local rivalship and private interest, the spirit of speculation, and the aggrandizement of party, are so profusely employed to stimulate the patient, and to deaden him to a sense of danger, that it is a long time, after they cease to operate, before he is restored to a sane state of mind, and a sound healthy condition of body. And though he does apparently recover from the shock, we have serious fears, that these repeated attacks are imperceptibly undermining his constitution. We have seen the turnpike bubble burst.—Few of these roads are at this day productive—many have been abandoned—much money has been expended upon them—and still the public is not greatly benefitted,—for in general they are not enough better than common roads to make up for the tolls they exact. Had the number been limited to one-third, or one-fourth, and these well made, the interests both of the stockholders and of the public would have been much better subserved than they now are. They have besides led to the culpable neglect of our public roads. We have seen that several of our banks have turned out to be mere bubbles;—and, if we mistake not, some of our canals, and many of our projected rail-roads will in the end prove to be not much better—public sacrifices at the shrine of private gain. We profess to be the ardent friends to public improvements of every sort: but we insist that prudence, which is wisdom applied to practice, is as commenable, and as necessary, and as much a virtue, in the management of the public concerns, as it is in the management of one's private concerns. What individual has ever been renowned for his wisdom or for his justice, who lavished upon one or two favorites, the patrimony which belonged equally to his whole family,—or who, *to benefit his children*, has encumbered his farm with an enormous debt. We would neither creep nor run, if we meant to make haste in a long journey.

No sooner has the silk business become a theme of public favor, than we see capitalists, or speculators, clubbing their means, and already erecting large silk establishments, as they have an undoubted right to do, but in too many cases we fear, from a hope of getting a profit on the *stock*, rather than on the *business*—on their *cunning*, rather than on their *labor*. They should remember, that the first requisite in cooking fish, is to *catch them*. Children sometimes recreate themselves with a play called "*Robin's alive*"—and this seems now to have become a fashionable game with men—though many a "burnt child," we apprehend, will have cause, hereafter, to *dread the fire*.

But we will go back to our starting point, from which we have been inadvertently drawn.

The silk business may be safely undertaken by every farmer who has a family of females, or children, *willing to pick the mulberry leaves and take care of the worms*,—or, if he begins with seedling plants in the nursery, *who has this aid in prospect*,—and he may enlarge his scale of operations, as his prospects of help and profit increase. His outlay will be comparatively trifling. An ounce of mulberry seed, or a few hundred plants, and some eggs when his trees afford leaves, will constitute the principal expense. The money which he obtains for his cocoons, or his silk, will be so much added to his nett income. But if the business is to be managed by hired labor, or without the supervision of the master or mistress, we cannot guarantee success, at least not to the extent that many sanguinely anticipate; and we should by all means advise such as thus intend, to begin with moderation, and to satisfy themselves, from experience, that they can manage the business with profit, before they venture to embark in it to a large extent.

We ought in candor to state two other facts, one of which we have not seen published, and which may be doubted by many till they have it confirmed by their experience. One fact is, that even the common white mulberry is often seriously injured, and sometimes killed, by the severity of our northern winters. The other is, that the Chinese mulberry, or morus multicaulus, seldom escapes injury from a like cause. We have had the white mulberry in our nursery the last six winters. In five of these the frost has killed many of the branches and some of the roots. We have had the Chinese three winters, and three winters the plants have been killed to the ground, and some of them have been destroyed root and branch. Others, we know, have succeeded better. Our soil is light, and we are aware that tender plants suffer more in it, from cold, than they do in clay or loamy soils.

Having made these preliminary remarks, from a wish to present the reader with a view of the whole ground, we preceed in our task to speak of the

Mulberry, to plant and nurture which is the first step in the business. There are several species and varieties of this tree, the leaves of which the worm converts into silk. Our correspondents advise us, that there are three kinds of indigenous growth in Ulster, and two in Montgomery, near the Mohawk river. The red fruited, *(rubra,)* is found wild in many parts of the country, and the leaves have been employed in feeding the worm. This species is common in most of the states, and a correspondent in Maryland writes us, that both the red and white grow abundantly there. The seeds of both kinds are scattered by birds, and we do not doubt but in a few years the white will be found springing up in our woods, as though it were indigenous. Mr. Rind has also introduced seeds of the Asiatic mulberry, from Constantinople; and D. Ruggles, Esq., of Newburgh, has twelve or thirteen thousand plants, from this seed, growing in nursery. The leaves are intermediate in size between those of the white and Chinese species; and there is another, we believe from Italy, similar to the Asiatic, and possibly the same, which has been growing some winters in our nursery, uninjured by frost. But for the present, reliance can only be had on the white and Chinese, not only because they are reputed to be best, but because the others cannot be immediately procured in sufficient quantities. Of the first only can seeds be procured, and this is the season to provide them. Plants of both kinds may be had at most of the public, and at many private nurseries. W. Thorburn, in Albany, sells the seed at fifty cents the ounce, and the eggs at eighteen to twenty-five cents the thousand. An ounce of seed will give from two to three thousand plants.

The statements in regard to profits are extremely variant, which depends undoubtedly upon good or bad management. The estimates of sixteen individuals, in Robert's Manual, vary from $72 to $2,664, as the products of an acre, in money, averaging about $1,000 per acre. The editor adopts $565·50 as the nett profit of an acre of full grown trees. Dr. Comstock, the author of "A Practical Treatise on the Culture of Silk," puts it down, as a safe calculation, that from $125 to $150 nett profit, may be expected from an acre of full grown trees. The lowest estimate is always the safest one for beginners.

We must refer to page 51 of vol. 2 of the Cultivator for directions for sowing the seed, and managing the plants in the seed bed, with this further direction, that in northern latitudes, it is a good precaution to cover the plants while in the seed bed, in winter, with coarse litter from the cattle yard or elsewhere.

The mulberry may be also propogated by layers, suckers and cuttings, and by the ordinary processes of grafting and budding. These modes of increase are seldom applied to any but the Chinese kind. Sprouts often spring from about the surface of the ground; and if these are earthed up they will throw off roots, and after a season may be separated from the parent stock and transplanted. Or these may be bent down to the earth, and converted into layers.

The Soil best adapted to the mulberry is a light loam, though they will grow in almost any soil not habitually wet. Stony ground, unfit for tillage, is as good as any for them.

The best aspect for a mulberry plantation is one sloping to the south or south-east or south-west; and it is advantageous to have it sheltered on the north and west by woods or high grounds.

Manner of planting—If the business is to be managed on a small scale, and only a few trees planted. these may be put out along fences, at the distance of twelve to fifteen feet apart, and trimmed up as they grow, so as not to incommode teams in the ordinary field labor. The holes for the plants should be three feet in diameter, and eighteen inches deep, and filled up to a sufficient height to receive the plant, with surface mould. In this the tree should be planted no deeper than it stood in the nursery, as when the ground has become compact, it will have settled an inch or more. The plants for this purpose should be from one to two inches in diameter at the butt. Those who contemplate going into the business largely, have a chance of three modes of planting, viz: as standards, in fields to be used for farm crops; as half standards, in grounds to be wholly appropriated to their growth; and as dwarfs, planted as hedges to divide fields, or otherwise. In the first instance, the directions given for planting and pruning fence trees will apply here, and their distance may be fifteen feet, or more, to suit the taste or convenience of the proprietor. If half standards are to be cultivated, and the ground ultimately to be appropriated to their growth, the ground should be ploughed deep, and if trench ploughed the better, and well pulverized, and the trees planted four to eight feet apart in double rows, that is, two parallel rows four feet apart, leaving intervals for the passage of a cart between each double row. Plant in quincunx, putting the plant in one row opposite the interval between two trees in the other, thus · . · . Half standards need not be pruned, except of such limbs as fall to the ground. Branches will spring from near the surface, and the intervals will be filled, in a few years, with thrifty foliage. For two or three years the intervals may be ploughed carefully, and cropped with potatoes, beans, &c., the tillage of which will facilitate the growth of the mulberries. Plants for half standards may be taken from the nursery at two years, and if very thrifty, at one year old. In all cases it is advisable to transplant the mulberry, at the north, in the spring, and the earlier the better. The object of this mode of planting is, to raise the greatest quantity of leaves from a given area of ground, and to facilitate the gathering of them. When required for a hedge, the plants may be one or two years old. The preparation of the ground and planting are the same as directed for the locust in the last Cultivator. A neat way of training this hedge is to cut down the plants the first year, to within four or six inches of the ground, leaving two buds, and after another year's growth, to bend down or lay one of the new sprouts, in the line of the fence, and tie it to the next plant, and to leave the other sprout to grow upright. The buds from the laid sprout will send up shoots and fill the intervals. The plants may be set fifteen inches apart. Sprouts springing from the roots should in all cases be cut away, unless they are wanted for layers. The method of managing this process we intend to describe in our next, accompanied with a cut. It is recommended that small trees, intended for spring planting, should be taken up the preceding fall, and buried in great part or wholly, to protect them from injury during the winter.

The Cocoonery is the place where the worms are to be fed, which should be sufficiently tight to protect them from stormy or severe weather, and so fitted that it may be thoroughly ventilated when the weather is mild and fair. A spare room of the house, or an out building, will serve for beginners on a small scale. This must be furnished with a table, or shelves to deposite the worms upon. The best way seems to be to frame four posts together, say four by three feet square, into which are fitted three or four frames for the worms to feed upon, the centre of which to be filled with meshes of catgut or twine, and others directly under them, covered with paper. The object of which is, to have all the filth and excrements pass through the meshes on to the paper slide, which may be withdrawn and cleaned without disturbing the worms. The paper frame should be so near the other, that if the worms fall through the meshes, they may be able reach it and get up again, which they will do for the leaves, which are always laid upon the mesh frames.

THE YOUNG CITIZEN'S MANUAL.

This is the title of a small volume just published by O. STEELE, of this city, of 220 pages, 18 mo., price 50 cents, designed for schools and the instruction of young persons generally, from the pen of ALFRED CONKLING, Esq., district judge of the northern district of New-York, well known as a scholar, a jurist and a gentleman. The object of the writer is to instruct our young men in the principles of our government, and in their duties as citizens. The object has been well carried out. The work is admirably adapted to the ends contemplated. It is divided into three parts: the first is an essay on the principles of civil government, and treats of the necessity of civil government, of the form of our own, and of the necessity of understanding its principles. Part 2, is a synopsis of the criminal code of New-York, explains the grades of felonies and misdemeanors, and the punishments which are by law attached to each—as also of the crimes and punishments defined by the laws of the United States. Part 3, has reference to such of our civil laws as are most important to be understood by the common citizen. The extract which we subjoin, on the reasonableness of submitting to the laws, must suffice, for the present, as a specimen of the matter and style of the author.

> "Should I, therefore, hear a man railing against the laws of his country, because they did not allow him to act in all respects as he pleased, I should set him down as a most unreasonable person. And if I should think it worth while to attempt to convince him of his folly, I would expostulate with him thus:
>
> "Your complaints are without foundation: for, in the first place, you are at liberty to do all that your fellow-citizens are permitted to do. There is, therefore, in this respect, a perfect equality between you and the other members of society. But there is a much better reason why you ought not to complain.
>
> "You in fact enjoy far more liberty than you could if there were no laws; you think it a hardship that you are not permitted to do as you please. But remember, that if you had this license, others would also have it. And, suppose it should please some man stronger than yourself, to drive you out of your house, and keep possession of it himself; to take away your horse; to stop you on the highway; to break your bones; to blast you in your reputation; or to destroy your life; there being no law forbidding such acts, and no human punishment for them, this man would probably do his pleasure.
>
> "The law which restrains your freedom, lest you should do harm to others, is therefore your best friend; because it restrains others from doing harm to you. Without it you would have no security for your property, your person, or even your life.
>
> "Thus then we see, that those laws which are necessary for the maintenance of good order in society, are beneficial to each individual member of it: for although by entering into a society subject to civil government, we give up a share of our personal independence, we are more than compensated by the security we obtain for the rights which remain to us."

Comparatively few of our people are familiar with the rights and duties of citizens, or with the principles of our civil government. They have been too much engaged in providing for the wants of life, to study into the nature of their civil and social duties; and the schools, where they might have acquired this knowledge, taught little of it. There are a thousand derelictions of duty, and petty offences against the good order of society, not punishable by law, which men commit from ignorance, or without knowing or reflecting upon their evil tendency. Where these are not only tolerated, but applauded, as they too often are, by the ignorant and the interested, it is no wonder that they should multiply, and too often grow into crimes. It is not the restraints of criminal law that can work a reformation in the heart, for where those most abound, and are most sanguinary in their punishments, we find that crime most abounds: it is the consciousness, impressed indelibly upon the human mind, of our moral and social obligations—and the conviction, growing out of our social relations, that it is our *interest*, and greatest source of true happiness, as well as a sacred duty, to respect the rights, opinions and property of others, to the same extent that we ask others to respect these in us. If these precepts are taught in the schools, and imprinted on the ductile minds of youth, as they would be by instructing them in the objects, principles and necessity of civil government—in the rights and duties of citizens, and in the tendency and punishment of crime, they would become leading maxims in life, and result in much good to society. We are a new people, not only in history, but in government, manners and habits, and we ought consequently to be so in education and knowledge. There are no foreign precedents fitted to our condition. Under the governments of the old world, where power is monopolized by the few, the few only need be instructed in the principles of civil government—because the commonalty have only to obey. But with us the commonalty do and must exercise the prerogatives of sovereignty—they must give the impress to our political and social institutions—and they ought perfectly to understand the principles of the government which they control, the duties of its officers, and the rights and duties of its citizens. Hence the necessity of school books, adapted to our institutions and condition of society, which shall instruct and invigorate the mind, in the high duties of civil and social life, while the bone and muscle of the body are acquiring strength and vigor, so that both may simultaneously acquire maturity, and be fitted to perform the offices of manhood at the same time. Of this class of books we consider the "Young Citizen's Manual," and we therefore recommend it, not only for schools, but as a fit companion of young men who have entered upon the stage of business life, *as the best book for this purpose that has fallen under our observation.*

The "Young Citizen's Manual" has been unanimously adopted, by the trustees, as a class-book in the Albany Academy.

"Public and Private Economy, by THEODORE SEDGWICK,*" from the press of the Harpers, 12 mo. pp 264—1836. Price 75 cents.*

This is a small and cheap volume that may be read with interest and profit by every class of American citizens, from the day laborer to the man of princely opulence, and which we respectfully beg leave to recommend to their consideration. It is adapted to the institutions and habits of our country; and if the principles which it inculcates are carried out in practice, it cannot but tend greatly to advance our happiness and to perpetuate our freedom.

The object of this volume is to make our people, what Cobbet long ago denominated them, "*a thinking people*"—to teach them that they are yet deficient in many of the comforts and enjoyments which constitute the true happiness of man, but which are accessible to all, or a great portion of our population, under the highly favored condition in which Providence has placed them;—that wealth, obtained by honest labor, whether mental or bodily, both of which are legitimate sources of wealth, confers the power of multiplying our individual comforts, of acquiring knowledge, a source of high intellectual enjoyment, and of dispensing happiness to others;—and that wealth *can* be acquired by all who practice industry and frugality—who are temperate in their habits, and discreet in their expenditures. That ill-gotten, disproportioned wealth, obtained by unfair dealing, by fraud, by oppression, by monopoly, generally contains the elements of its own destruction—and is most abused, by being employed for sensuality, pomp, parade, and splendid outside; and that *this* "no more fills the mind with happiness, than husks and ashes, if eaten, would give strength to the body." In short, its object is to make our people industrious, virtuous and wealthy—to show them the true use of wealth, in promoting substantial improvement, civilization, refinement, and the happiness of the human family—and that when it is abused, in its expenditure, it tends powerfully to defeat these noble purposes.

We intend, hereafter, so far to trespass upon the rights of the publisher, as to make some extracts from the work, for our Young Men's Department. In the mean time we make two quotations, as specimens of the author's style, and of the happy and perspicuous manner in which he illustrates and enforces his propositions.

"Public economy teaches, that all the wealth of the nation is divided into one great heap, which is the public wealth, and many smaller heaps, which is the private wealth. The public heap is that which belongs to the nation; as in the United States, the public lands, the public stores, the money, and every other kind of public property. This is for the support of the army, the navy, the officers of the government, and all the public institutions. The private heaps are those which belong to private individuals exclusively, as a man's farm, cattle, &c. Public economy teaches, that in the public stock all are partners, rich and poor, and that no man has a right to take a farthing without the public consent obtained. That all the wealth of a nation, public and private, may be supposed to be gathered into one great store-house, which is divided into public and private apartments; that the common stock is stored in the public rooms; that every industrious man has a private apartment, under the same roof, which is under his own lock and key. That as the public apartments are filled from the private, the better supplied the latter, the better will be the stores of the nation. That if a man set fire to, or in any way destroy those parts of the building, where the public property is stored, he is a loser of course, because he is a partner in it, though the flames do not reach his own apartment; and if, through heedlessness, spite or malice, he kindles a blaze in one of the private apartments, he then destroys one of those heaps, out of which the great public store-house is furnished.

"From this we see, that in all true economy, property, belong to whom it may, to the nation or to individuals, to rich or poor, is sacred, on account of the good it does—that it is very base and stupid for men to waste, burn or destroy any property, which is little better than a man's breaking the windows of his own house, or putting fire to a city where he is the owner of stores and houses. It is the characteristic of a brute to waste and defile the food which he will need to-morrow. Property, then, is the life of the people, and it is suicide wantonly to destroy it."—p. 30.

"And what are intellectual pleasures? In presenting an answer to this question, we see the true value of property, and the leanness and meanness of poverty. Intellectual pleasure is that of the mind and soul, or of the heart; it is that which we enjoy other than as that of mere animals. The social pleasures, those which we possess in the society of friends and neighbors, make a large portion of these pleasures of the mind and soul. Intellectual pleasure is found in the grace and beauty of life, in charity, in hospitality, in the luxury of spending our money so as to do the greatest good with it. It is in a good, comfortable, well furnished house, a well ordered farm, in the flower, the garden; in observing neatness and order prevail in our abodes, and in seeing our children neatly and fitly clad. It is, or would be every where, if men would buy it with the money which they can and do earn. So simple, and cheaply purchased is much of this kind of pleasure, that those who are not rich can have it as well as the opulent; and when the people come to care for, and to work in earnest mainly for these things, there will be an end of mobs and riots to avenge their wrongs, real or supposed, by the destruction of property. They will then see how mean and stupid it is to waste that wealth which is the source of their greatest blessings, how like children to destroy the hen that lays the golden egg."—p. 102.

COMMON ROADS.

Our road act has been so often amended, or rather *mended*, that, like an old garment, or an old kettle, it has in a measure become useless, failing to subserve the good purposes desired; and it is the general belief, that it is better to make an entire new one, than to attempt to *patch* up the old thing. The first step towards remedying an evil is to ascertain its cause. The defects of our road system seem to be

1. The short tenure of office, the circumscribed jurisdiction, and the consequent lack of system, and of knowledge in what concerns the general and permanent good, in the officers who are appointed to lay out the roads.

2. The want of competent knowledge, both in theory and practice, and the desire to subserve local or personal interests, too common in those who are appointed to superintend their construction and repair.

3. The indolent, inefficient mode in which the laborers perform their share of the duty.

Our roads should be laid out with reference to the public accommodation—with a view to afford the best and shortest routes for the great body of people to reach market, and perform their ordinary business: they should be constructed upon principles which will render them most perfect, most permanent, and most economical in the long run; and the labor should be directed by a competent engineer, and faithfully and honestly performed. Road-making is as much an art as shoemaking, and practice can alone make perfect in either; and it is as much a science as civil engineering upon our canals and rail-roads. The soil and substratum, drainage, inclination and materials, are all matters of the first moment in constructing roads; and in these matters our road officers are generally ignorant or reckless. What farmer would think of employing himself and hands in constructing his buildings, or in making his shoes or harness, when he could have them done much cheaper, and much better, by professional mechanics? Road-making is considered in Britain a more scientific and intricate business than the common mechanic arts, and employs higher talents. At present the path-master seeks to improve the road which he most travels, and the laborer merely to get rid of the exactions of the law; and both concur generally in making the days of highway labor at least half-holidays. We put it to any man who is acquainted with the mode of performing highway work, if one half of the time is not virtually wasted—if six men, experienced in road-making, under a competent engineer, will not do more good upon a road in a day, than eighteen men do now as ordinarily employed.—If so, the farmer might better pay for *one* day, than work or lose *three* days, from his farm.

As no one should find fault without suggesting a remedy, we proceed to suggest our plan of reform.

1. Substitute county for town commissioners, appoint them for a term of three or four years. Let them be appointed by the judges and supervisors, who *will* select good men. Pay them liberally. Require them to make a semi-annual circuit through the county, if business offers, to lay out and alter roads. Let all applications for new roads, or alterations, be presented to them previous to these tours of duty. Their jurisdiction will be enlarged, their responsibility increased, and they will be enabled to digest a system of *general* improvement, and to carry it into effect. The expense of these duties will be sensibly lessened.

2. Appoint, in the manner, and for the time above indicated, a competent engineer, as superintendent of roads, whose duty it shall be to attend the commissioners in their semi-annual tours, to advise with them, and to superintend and direct the construction of all roads in the county, with power to appoint one or more assistants, and to employ competent laborers to perform the work. Let these charges be paid from the county treasury, after being duly audited.

3. Let the highway tax be paid in money, with the county taxes. Professional road makers would then be employed, labor would not be misapplied, more work would be done, and better done; most of the money would again return to the pockets of the farmers, for team-hire, provisions, materials, &c., and our roads would be progressively improving, with half the expense that is now bestowed upon them—our bridges would be more permanently and economically constructed, and system and order would grow out of confusion.

ON INVESTMENTS IN MENTAL STOCK.

When men grow rich by their business, be it professional, mechanical or agricultural, it becomes deservedly a matter of calculation, how they shall best employ their surplus profits, with the view of promoting their own happiness, and subserving the interests of their children. Our farmers who farm well, and attend to their business, are doing well, better perhaps than at any former period of our history, and are laying up annually snug sums of money. To render these profits truly a blessing, and to enhance their value, they must take care to implant early habits, that will enable children to appreciate, and to preserve, the patrimony which is thus annually accumulating for them, and above all, to enjoy it as rational men. These objects are best effected, by vesting a part of this augmenting capital in MENTAL STOCK—in giving to their children the advantages of a good education. Other property is liable to many casualties, and may be wasted or destroyed; but the treasures of the mind are stable, and are certain to endure while reason holds the rein. There is not a thriving farmer but can have his sons instructed in the general principles of physical science—in the laws which God has instituted for the government of the animate and inanimate matter of which our globe is composed. The brutes are taught, by instinct, to provide for their wants, and to take care of their young. But man is endowed with intellect, capable of vast expansion, and of a scale of enjoyment of which the brute must ever be an utter stranger. Possessing these high capacities, can a father consent to see his children forego the pleasures and moral improvement which education may confer, and which should distinguish our species, and to grovel through life almost on a level with the inferior orders of beings? The investment which we advocate, will not only constitute a business capital, serving to increase the profits of labor, but an intellectual capital, serving to increase the happiness of man. Knowledge is multiplex in the benefits it confers. It may be dispensed to thousands without impoverishing him who dispenses it. Hence whoever will, may profit by its teachings.

Again. What father is there who would not like to see his son distinguished for talent and usefulness, exerting a benign influence upon the condition of society, and enjoying the respect and esteem of his fellow-citizens? Can he reasonably expect to see this unless he dispenses to him the advantages of education? Can he expect to reap the harvest, without sowing the seed, and without sowing the seed too in the spring-time of life?

AGRICULTURAL CONVENTION IN VIRGINIA.

An agricultural convention was held at Richmond, Va. on the 11th Jan. *James Barbour*, late governor, was called to preside, and *Edmund Ruffin*, editor of the Farmers' Register, was appointed secretary. About 200 persons were in attendance. The meeting was addressed by Gov. Barbour, a lengthy memorial to the legislature was reported by Mr. Garnett, and a resolution adopted to call another agricultural convention, at the capitol, on the first Monday in January 1837. The object of the convention was to improve the condition of Virginia husbandry, and the memorial, which is ably written, points out three modes of effecting this desirable object. "The *only things*," says the memorial, "which can save our state from sinking to the very bottom of the federal scale," "are *popular education* and *internal improvements*, at the head of which stands AGRICULTURE." The measures prayed for in the memorial, are

1. "The establishment of an agricultural professorship in their university, *never to be filled by any but by a scientific and practical agriculturist*, with a salary of $1,500, to be paid out of the unappropriated balance of the literary fund; and in connexion with this an experimental farm, of one or two hundred acres, to be purchased with the same fund; upon which farm the pupils of the professor should be required, as a part of their duty, to labor a certain number of hours every day. Such an institution would furnish in a few years, a body of hardy young men, skilled both in the theory and practice of agriculture," "qualified at once to become proprietary cultivators."
2. "To establish a state agricultural society, or board of agriculture, somewhat similar to that of New-York."
3. "To employ a competent person, with a sufficient salary to defray all necessary expenses for two years, to make an agricultural survey, or critical examination, of all the best cultivated parts of the Atlantic States; and to make a written annual report to the legislature, of all the most approved methods within each state, of clearing, draining and fertilizing land; of cultivating, harvesting and preserving the staple crops of the same; of improving, rearing and keeping farm stock of every kind; together with a particular description of all the best agricultural machines and implements," to form a body of husbandry like the works of Young and Marshall.

It affords us high gratification to find, that the necessity of enlarging the sphere of agricultural knowledge, by affording to the cultivators of the soil a better education, at the public expense, is every where becoming manifest, and attracting the public attention. We doubt, however, whether the plan suggested by the Virginia convention, of appending an agricultural professorship to a literary institution, will ever answer any beneficial purpose. The literary or agricultural class must become subordinate; and when we consider the disrepute which attaches to labor by the young, it is very evident which will be ascendant. Agriculture will never flourish in the shade, or as a subordinate study. You must make it the great and paramount object of an institution, if you would make it honorable, and useful, and praiseworthy.

STATE AGRICULTURAL CONVENTION.

The Agricultural Convention which convened at Albany on the 8th February, we have reason to believe, would have been very numerously attended, but for the almost unprecedented snow storm which preceded its day of meeting, and which prevented the attendance of many delegates even from neighboring counties. Notwithstanding the difficulty of travelling, the names of about 140 gentlemen were handed in to the secretaries as in attendance, and these were from most of the counties in the state. Much good feeling, and an anxious desire to forward the objects which engaged the attention of the convention, were manifested, and confident hopes were indulged, that their deliberations would result in much positive good to the community. It will be perceived that another agricultural convention is appointed to be held on the first Thursday in February 1837.

MAPLE SUGAR.

Every sugar boiler knows how to make maple sugar, but every one does not know how to make *good* maple sugar. The material of foreign sugars is the same; the difference in quality and price, results from the difference in the processes by which it is manufactured and refined. The art of making good sugar consists in freeing it from all impurities, which may affect its flavor or appearance. With the same care the juice of the maple will make as good sugar, and as white, as the juice of the cane. Every family who make maple sugar, may add one-third to its market value by the simple process we are about to detail, and which it will cost them but a trifle to adopt. It is the process by which Havana sugars are brought to the purity and whiteness which we see them in our market. We take it from Chaptal, who manufactured sugar extensively from the beet, and who here describes the process he successfully pursued.

We will first give the processes of purifying the juice and the syrup. The juice (of the beet) is first heat to a temperature of one hundred and eighty deg., thirty-two deg. below the boiling point, when some milk of lime, prepared by throwing some warm water on to lime, is thrown in, and the liquor well stirred. As soon as the first bubble makes its appearance, the fire is extinguished, and the liquor left at rest. A scum rises, thickens, dries and hardens. The liquor becomes clear. The lime unites with the mucilage and settles to the bottom. The scum is removed, and the clear liquor drawn off. The process requires an hour, and sometimes much more. The syrup is afterward refined by animal charcoal and the whites of eggs, and filtered through a coarse, thick, rough cloth. Moulds of tin or other material are prepared, of any size, of a conical shape, like the form of a sugar loaf, with a stopper in the small or lower end. When sufficiently reduced, the syrup is turned into them; as soon as granulation has began on the surface and sides, the crust is broken with a spatula, and the whole stirred well; after which it is left alone. After this the process of whitening or claying is thus managed: The clay is first thoroughly washed, till it requires such a degree of consistency as not to flow when placed upon a smooth and slightly inclined board. It is then thrown on to the sugar in the moulds. The moisture penetrates the loaves, deprives the sugar of its color, and passes out at the point of the mould, which should now be unstopped. The clay, deprived of its water, shrinks and dries, and is removed. A second, and sometimes a third application of clay is made, before the sugar attains the desired whiteness.

Hot Beds.—The season for preparing these, in this latitude, is from the 20th to the last of March, for early cabbage, and salladings—and earlier as we progress south. Cucumber frames may also be prepared by those who wish them early, or who employ a professional gardener. For tender plants, which it is desirable to have early for the table, or for ornament, and which are to be grown in the open ground, as peppers, celery, tomatos, egg-plants, okra, melons,—or balsams, asters, coxcombs, xeranthemums, marygolds, &c. in the floral department, the sowing in frame may be omitted till the 10th or 15th April. Dahlias and tuburoses may be planted in pots of earth, and kept in the dwelling where the sun will come upon them, or placed under a frame, to expedite their growth and flowering; and previous to being transplanted into the open ground the last of May, the former may be divided so as to leave one sprout to each plant—one being better than many. The Dahlia is almost as tenacious of life as the potato, and may be propagated by sprouts—started early in pots, they frequently come into flower in June, and continue in bloom till the autumnal frosts. When planted out, they should have a strong stake driven by the side of them, to which they may be tied as they progress in growth. Six feet is a proper interval to be left between them. [For directions to make hot-beds, see p. 6, vol. 2.]

Gypsum.—If Sir Humphrey Davy and others are right, in supposing that plaster of Paris constitutes a specific food for some plants, and that it requires four or five hundred parts of water to render it soluble, so that it may be taken up by their absorbent vessels—and we are inclined to believe they are right—plaster ought to be sown upon grass grounds in March, so that the vernal rains may carry it into the soil, where there is constant moisture to decompose it, and where the roots, the mouths of plants, are waiting to receive it. There is much doubt among farmers, as to the *manner* in which this mineral benefits farm crops, and whether it benefits only a *few*, and *which* these are. It is generally conceded, that upon porous and dry soils, it does benefit clovers, corn, potatoes, peas, and, generally all plants having broad and succulent leaves. But it is a matter of doubt, at least in our minds, whether its application is directly beneficial to timothy, wheat, rye, or barley. Now is the time for every farmer to satisfy himself upon these points.—Let him sow a strip of his grass in March, another strip in April, and another in May, with gypsum, and note the difference, if any. Let him sow a strip on his wheat, his rye, his timothy, and his barley, leaving adjoining parts unplastered. The results cannot fail to instruct him in its operation and its use. Facts thus established by repeated observation, become science, and are useful to the world; and although the term may be contemned by the ignorant farmer, it constitutes the basis of all improvement in the arts of civilization and refinement. Any experiments made in pursuance of these suggestions, will be gratefully received and recorded.

THE FARMER.

"*Repect thyself,*" is the first step towards commanding the respect of others. This maxim does not receive the regard which it is entitled to among our northern farmers, either individually or collectively. There is no class in society who have at command more of the elements of public usefulness, of unshackled independence, and of true greatness, than the tillers of the soil; and yet they succumb, without a murmur, in public matters, to the control of others, and by their own acts belittle the noblest employment of life. In the south, the proprietor, or planter takes, and others concide to him, the first rank in society, because the soil, the fixed, abiding wealth of the country, is his, and because he qualifies himself, by education, to assume and sustain his just rights. With us the case is different. Education is too much contemned, or neglected. We mean that sort of education which enlarges the human faculties, and teaches man his rights and his duties—and which enables him to bring the powerful energies of his mind to co-operate with the physical powers of his body. We see many of our farmers seeking to *elevate their condition*, by becoming innkeepers, merchants, or public officers; and others, as if ashamed of their calling, or not knowing how to estimate its advantages, sending their sons to learn the chicanery of the law, or initiating them into the mysteries of mercantile duplicity, in order to make them *gentlemen!* Mistaken men! There are none in society more truly gentlemen, than well educated exemplary farmers—none so independent—none more useful—none so honorable—none who so largely realize and acknowledge the bounties of Providence, or who so efficiently contribute to the happiness of the human family. And it costs no more to make a gentleman practical farmer, than it does to make a gentleman lawyer, a gentleman merchant, or an idle good-for-nothing gentleman. The human mind expands more, on nature's broad domain, than it can in the pent-up town; it sends abroad further the diffusive lights of its knowledge—it is less mercenary and selfish, and glows with a holier fervor of love to God and good will to man. "God made the country—man the city."

If the farmer would imitate what is truly commendable in those he considers the higher classes, rejecting their extravagnees and follies—if he would improve his own mind, and educate his children in what is useful and accomplished, and in habits of industry and frugality—if he would exhibit a pattern of neat and profitable farming, multiply the comforts of his house and his garden, embellish his grounds, and exercise affection and kindness to all around him—his children would not wish to leave him, nor would he wish to send them to other employments, to exalt them in rank, or to improve otherwise their condition in life. George Washington, confessedly the greatest and best man of our age or country, was practically a farmer, and the son of a farmer.

ANSWER TO QUERIES.

A. Wetherbee inquires: 1. "What is the best and most expeditious method of clearing forests of their first growth?

2. "Is it better to manufacture the ashes into potash, or to let them lie on the ground?

3. "Should the land, after clearing, be ploughed before sowing or seeding, or will it be better to harrow the seed in?

4. "How can new land be best brought into grass, and will the plough or harrow be required to stock it down?"

We are of opinion that Mr. Wetherbee would have obtained a better solution of his questions in the neighborhood of his uncleared grounds, or of some pioneer settlers, than we can furnish him. Nevertheless we will give brief answers, which may serve till he can get better ones. Our answers are predicated on the supposition, that his is a dense hard-wood forest—and that the object is not to save, except for fences, but to destroy, all the wood and timber.

1. Cut down all the timber—except it is intended to leave for a leisure time some of the large trees—in May or June, after the foliage is well out, cut the buts into suitable lengths for fence or logging, and lop the limbs and branches. In a dry time in August, or early in September, set fire to the fallow. The more thoroughly it burns the better will be the crop. Pick up and burn the brush, if any has escaped the fire, and draw off the logs for fence, or roll them into piles and burn them.

2. Collect the ashes from the log heaps, and manufacture from them salts or potash. There will be enough remaining to benefit the crop.

3 and 4. The land should be thoroughly harrowed with a heavy triangular drag, the grain and grass seed sown, and thoroughly harrowed in. If the land is not wanted for tillage, it should lay three or four years in grass, till the roots and stumps have sensibly decayed, and then—and not till then—break up with a strong plough, and four oxen, and collect and burn the roots and loose stumps. Much depends upon the burning. If the leaves and sticks which have accumulated on the surface are not pretty much burnt, they will become dry, and the seeds will fail to germinate for want of moisture. The fire has also a benign influence upon the surface soil, in neutralizing or destroying salts and acids that are hurtful, and producing those that are alkaline, and stimulating, and beneficial to vegetation.

A. Wood, Jr., inquires: 1. "Does the moon have any effect upon our cops, in the time of planting or sowing?" *Answer*—No.

2. "What effect does the sun have upon man or beast in passing through the twelve signs of the zodiac?" *Answer*—None that is perceptible.

Sow and plant in good season, when the soil is well prepared for the seed, and perform the operations upon domestic animals without reference to the sign.

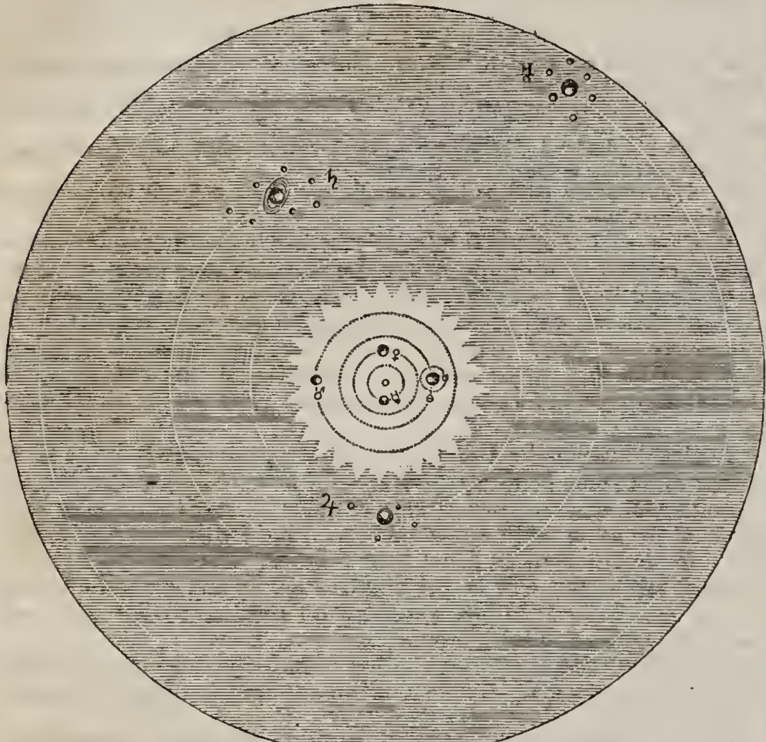
Fat Sheep.—Our market, as is usual at this season, exhibits superior specimens of mutton, of New Leicester, Hampshire and South Down breeds. Of the latter, there were several, fattened by C. N. Bement, exclusively on ruta baga, which attracted particular notice. The South Downs are celebrated for producing the best *fat-lean*, and well flavored mutton, which brings the highest price in the London market. We see also that our friends Hallock, of Marlborough, Ulster, whose good farming we had occasion to commend in our December number, has been selling his Leicesters at $15 per head, and that the buyer resold them at New-York at $20. Messrs. Hallocks have on hand two, for which they have refused $40 each. They weigh two hundred pounds each.

White Mulberries.—The frequent inquiry for these induces us to suggest, that persons who have large quantities to sell, may benefit themselves by notifying us, free of charge, of the fact, their condition, and the price, by the hundred, thousand, or five thousand.

CHAPTER OF FACTS.—ASTRONOMY.

We have, at considerable expense, procured the accompanying cut, in order to explain to our young readers, the magnitude and plan of the solar system. Nothing can be more worthy the study and admiration of man, than the works of his Creator. They display the power and perfections of the Sovereign of the Universe, and the insignificance and nothingness of man in the scale of creation.

Fig. 1.—General View of the Solar System.



The large figure before us, exhibits the solar system, with the sun, the fountain of light and heat to the whole system, indicated by the dot in the centre. The seven circles around this centre, show the orbits of the seven principal planets, and their relative distances from the sun. The sun itself is an immense globe, thirteen hundred times larger than the earth which we inhabit. The planets all revolve in their several circles, and are also known to revolve on their own axis, giving to each a daily, and an annual revolution, though the day and year in each differ, as we shall presently see.

The sun is 880,000 miles in diameter. It is known to have a motion of *rotation*, like that of a globe or ball turned round a pivot or axis, which is performed in the space of twenty-five days and ten hours. The supposition of Herschel, one of our greatest astronomers, is, that the sun is peopled with inhabitants.

The small inner circle is the orbit of mercury ☿. This circle is thirty-seven millions of miles from the sun, and the planet passes through it, and completes its year in eighty-eight days. The diameter of mercury is about three thousand two hundred miles. By reason of its nearness to the sun, it is seldom seen by the naked eye.

The next circle to mercury's, is the orbit of Venus ♀, which is sixty-eight millions of miles from the sun, and performs its journey around the sun in two hundred and twenty-four days. It revolves upon its axis in twenty-three hours and twenty minutes, and of course, its day and night are forty minutes less than ours. Its diameter is seven thousand seven hundred miles. This planet is the evening and the morning star. M. Shroeter affirms, that he has discovered in this planet, with his telescope, mountains ten, twelve and twenty-two miles high. About twice in a century, this planet appears to pass, like a dark spot, across the sun's disc, or surface. This is termed the transit of Venus. The last happened June 3, 1789; the next will happen December 8, 1874.

The third circle from the centre is the earth's ⊕ path around the sun, which is passed through, so as to complete its annual revolution, in three hundred and sixty-five days, five hours and forty-nine minutes. The distance of this orbit or circle from the sun is ninety-five millions of miles—its diameter is eight thousand miles.—Although the earth's orbit is apparently circular, yet it is not in reality so—the earth being more than two millions of miles nearer the sun in winter than in summer.

The planet next nearest the sun is Mars ♂. Its orbit is at the distance of one hundred and forty-five millions of miles from the sun, it is four thousand two hundred miles in diameter, and it performs its revolution round the sun in one year and ten months.—With a good telescope, his surface appears diversified by a variety of spots; by the motion of which it is found, that he turns round his axis, or completes his day and night, in twenty-four hours and forty minutes. At his nearest approach to the earth, his distance is fifty millions of miles; and, at his greatest distance, he is two hundred and forty millions of miles.

Between the orbits of Mars and Jupiter, four small planets have been discovered within a few years, and are called *Ceres*, *Pallas*, *Juno* and *Vesta*. Their orbits are not shown upon the map. Ceres was discovered on the first day of the present century, by M. Piazzi, of Palermo. Pallas was discovered the following year, by Dr. Olbers, of Bremen. Juno, by M. Harding, of Bremen, in 1804, and Vesta, by Dr. Olbers, in 1807. These planets are about the size of our moon, and make their revolutions about the sun in about four to five years.

The circle next to that of Mars, indicated on the map, is the orbit of Jupiter ♃, the largest planet in the system; being eighty-nine thousand miles in diameter, and fourteen hundred times larger than our earth. It revolves upon its axis, i. e. completes its day and night, in nine hours and fifty-six minutes, and therefore those parts about its equator, move at the rate of twenty-eight thousand miles an hour. It performs its revolution about the sun in one hundred and twenty-one of our years. Jupiter is attended by four satellites, or moons. This planet, if seen from its nearest moon, will present a surface a thousand times as large as our moon appears to us. Jupiter is four hundred and ninety millions of miles from the sun.

The outer circle but one is that of Saturn ♄. It is nine hundred millions of miles from the sun, and the planet is seventy-nine thousand miles in diameter. It takes twenty-nine and a half years to complete its revolution round the sun, yet its diurnal revolution, or day and night, is completed in ten hours and sixteen minutes. The year of Saturn, therefore, contains about twenty-five thousand one hundred and fifty days, equal to ten thousand seven hundred and fifty nine of our days. This planet, as will be seen, is encircled by a double ring, which is ascertained to be thirty thousand miles distant from the planet. This double ring consists of two concentric rings, that is, one within the other; the innermost of which is nearly three times as broad as the outermost; the circumference of the latter is six hundred and forty thousand miles; its breadth seven thousand two hundred miles; the breadth of the inner ring is one hundred and eighty-four thousand miles. The dark space, or interval between the two rings, is two thousand eight hundred miles. The breadth of both rings, including the dark space between them, is thirty thousand miles. Saturn has seven moons. Mr. Dick, after describing the phenomena of this planet, indulges in the following reflections:

> "There is no other planet in the solar system, whose firmament will present such a variety of splendid and magnificent objects, as that of Saturn. The various aspects of his seven moons, one rising above the horizon, while another is setting, and a third approaching to the meridian; one entering into an eclipse, and another emerging from it; one appearing as a crescent, and another with a gibbeous phase; and sometimes the whole of them shining in the same hemisphere, in one bright assemblage;—the majestic motions of the rings—at one time illuminating the sky with their splendor, and eclipsing the stars; at another casting a deep shadow over certain regions of the planet, and unveiling to view, the wonders of the starry firmament—are scenes worthy of the majesty of the Divine Being to unfold, and of rational creatures to contemplate. Such magnificent displays of Wisdom and Omnipotence, lead us to conclude, that the numerous splendid objects connected with this planet, were not created merely to shed their lustre on naked rocks and barren sands; but that an immense population of intelligent beings inhabits those regions, to enjoy the bounty, and to adore the perfections of their great Creator."

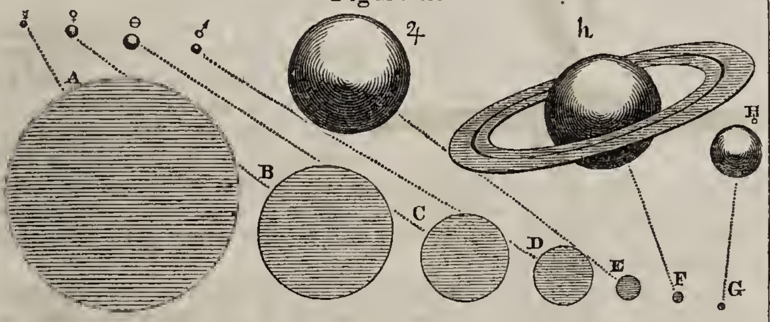
The remaining primary planet is Herschel ♅, discovered in 1781, by the astronomer whose name it bears. This planet moves in the outer circle described in the map, which is one thousand eight hundred millions of miles from the sun, the centre of the system.

The diameter of Herschel is thirty-five thousand miles, or about eighty times larger than the earth. It takes eighty and a half years to complete its revolution round the sun. It has six moons.

The planets which we have described, are termed primary planets. There are besides, belonging to our planetary system, eighteen secondary planets, or moons; one revolving round the earth, four round Jupiter, seven round Saturn, and six round Herschell. Our moon is the nearest planet to our earth. She is two thousand one hundred and eighty miles in diameter, and about two hundred and forty thousand miles from the earth, making her revolution in twenty-nine days and twelve hours. Her surface, when viewed with a telescope, appears to be diversified with mountains, valleys, rocks and plains, in every variety of form and position. Some of the mountains are ascertained to be five miles high, and some of the plains one hundred miles in diameter. That this planet, as well as the others belonging to our system, are inhabited by intelligent beings, there is every reason to believe, from the general beneficence of the Creator, who appears to have left no large portion of his material creation without animated existences.

The planets are known from the stars from their motions in the heavens—the stars remaining apparently always in the same place. The latter, whose number is almost countless, are each supposed to be suns, or centres of other systems like ours. Their great distance from us may be judged from the fact, that although we are nearer to some in one part of the year, by one hundred and ninety millions of miles, (this being the diameter of the earth's orbit,) than we are in another, the fixed stars appear always precisely of the same magnitude. How insignificant appears a single farm, when compared with the entire surface of the globe! and yet our globe, as large as it may seem, bears a still less proportion to the works of creation.

Figure 2.



The upper horizontal row, in fig. 2, exhibits the proportional magnitudes of the primary planets, compared with each other, and with the sun, as represented by fig. 2. ♄ Saturn. ♃ Jupiter.—♅ Herschel. ♂ Mars. ⊕ The Earth. ♀ Venus. ☿ Mercury. The lower horizontal row, in fig. 2, exhibits the proportional apparent magnitudes of the sun as seen from the primary planets. A Mercury. B Venus. C the Earth. D Mars. E Jupiter. F Saturn. G Planet Herschell, or Georgium sidus.

☞ **Apology and Advertising.**—The trouble of getting out our index and advertising sheet, caused a delay in the distribution of our last number, and we regret to add, that some of the favors of our advertising friends were reluctantly omitted, on account of the pages devoted to their insertion being pre-engaged. If sufficient encouragement offers, we propose to issue an advertising extra with our August number. That publishers, land-holders, and others, who wish to make known their business, may be able to appreciate the advantages of our circulation, we subjoin a memorandum of our subscribers, for vol. 2, in the several states, &c.

New-York,	6037	Massachusetts,	634
Pennsylvania,	761	Virginia,	400
Ohio,	336	New-Jersey,	315
Vermont,	336	Connecticut,	580
Michigan,	211	Delaware,	133
Illinois,	98	Maryland,	181
Indiana,	74	The Canadas,	86
Kentucky,	54	New-Hampshire,	104
North-Carolina,	26	Alabama,	20

Together with more or less in Maine, Rhode-Island, District of Columbia, Georgia, South-Carolina, Louisiana, Missouri, Mississippi and Arkansas, amounting in the aggregate, to between eleven and twelve thousand.

Agricultural Improvement.—We have frequently adverted to the improvement of Scotch husbandry. In confirmation of our opinion, we quote the following sentence from the December number of the Edinburgh Quarterly Journal of Agriculture. It is the remark of William Aiton, and is high authority.

> "Every person who has reached the age of fifty years, and that has paid the least attention to the progress of agriculture, will admit, that the produce of land has been far more than doubled within that period; and every intelligent farmer will also admit, that our arable land is capable of producing double its present produce in the course of twenty years."

CORRESPONDENCE.

REMEDY FOR BOTS IN HORSES.

J. Buel, Esq.—Dear Sir—In the last April number of the Cultivator, is a remedy for bots in horses; and my object in this communication is, to give publicity to the fact, that the life of one of my horses was preserved by the use of that remedy, after having tried every thing that could be thought of by an experienced farrier. I would recommend the use of that remedy to all in like cases.

Very respectfully yours,

Sherburne, Feb. 22, 1836. ISRAEL FOOTE.

The prescription is—Mix one pint of good vinegar with half a pint of good sifted ashes, in a bottle, and turn the dose down the horse's throat while effervescing. From one to three bottles will suffice, given at intervals of twenty or twenty-five minutes, if found necessary.

Knox, February 10, 1836.

Dear Sir—Having determined to cultivate a piece of ground with potatoes last season, partly by way of experiment, in the manner recommended in the Cultivator, for hoed crops, I chose a half acre of land situated in the corner of an old pasture, a part of it too wet for ordinary cultivation, and the remainder produced but a scanty herbage. The following is a statement of the estimated expense and the result:—

Expense for underdraining,	$2 50
Carting and spreading ten loads of coarse manure from the barn yard,	2 50
Nicely turning over the sod, by once ploughing,	1 00
Harrowing and furrowing, two and a half feet apart, so as not to disturb the sod,	1 00
Planting,	1 50
Ploughing shallow between the rows, plaistering and hoeing, moulding up the plants slightly,	1 50
Twenty bushels of good seed, at twenty-five cents per bushel,	5 00
Harvesting,	3 00
Total,	$18 00

The average yield was a bushel from twelve hills, or two hundred and seventy-five bushels, at eighteen cents per bushel, $49 50

Deduct expense, leaves clear gain, 31 50

equal to the interest of nine hundred dollars per acre.

Yours respectfully,

J. Buel, Esq. A. CRARY.

DUTTON CORN.

Mr. Buel—In one of your late numbers, you speak of having sent some of the Dutton Corn into New-Jersey, but of the success of which you had not heard. A barrel of it was sent to me, part of which I planted, and the rest was distributed among my neighbors. I planted in different fields, and in all instances, other kinds of corn in the same field, and with equal chances to each, but with very different results—the Dutton having, in every case, yielded more than any other—besides having more and better fodder from it, because the stalks are smaller and more easily eaten by cattle. In one field, a sward of ten years standing, I planted it by the side of another kind of usual good product, and the two kinds produced in the proportion of three hundred to two hundred and fifty—two acres of the Dutton corn having produced three hundred bushels of ears, and the other two hundred and fifty—the land and the tillage in all respects the same; and yours was cut up two weeks earlier than the other, being fully fit on the first of September, when I commenced it. *N. Jersey, Feb.* 1836. G. H. M'CARTER.

CURING HAY IN COCK.

Mr. Editor—Having been a subscriber to your valuable paper, some two years, and having perused it with anxiety and pleasure, and I think not without profit, I have been waiting to hear from some one more able to give the necessary information than myself, some directions with regard to the curing of hay. But as I have not found any thing that seemed to meet my mind, I have ventured to give you my views on this important subject.

1st. What is there in hay, that causes it to sustain and nourish animal life? I think, sir, that the oil that it contains, is the nourishing part. Now, sir, this being the case, the next most important question is, in what stage of its growth does it contain the most oil. This, I think, can be answered by reference to the distilling of peppermint; that herb produces most oil, if cut when full in the blow; and I think grass contains most oil when in the same state. The next question is, how can it be cured, and in the curing loose the least oil. Perhaps this may be demonstrated by again having reference to the distilling of peppermint. It is well known that if that herb is suffered to lie exposed to the sun after it has wilted, it loses a portion of the oil, and further, if it is suffered to lie packed together in a large mass, and heat, almost all the oil is carried off by such fermentation.

Now, sir, if these facts are applicable to the curing of hay, then as soon as grass is wilted, it should be put up in small cocks, not sufficiently large to heat, and should thus remain, until sufficiently cured to put in a large mass without fermentation. For in case it heats or ferments, it loses in weight and bulk, and loses more in oil, or in its nourishing properties than in both, (viz., weight and bulk,) becomes stiff, and loses almost all its nourishing properties. Hence I have frequently observed, that when the weather has been unfavorable, I have carried hay into my barn when it was well wilted, and by spreading it in the barn until it becomes sufficiently cured, so that though packed in a mass, it would not ferment,—that such hay is most readily devoured by the stock, and appears to afford them the most nourishment.

This being the case, as many intelligent farmers have proved, it appears to say that hay should not be exposed to the sun after it is well wilted, and should be well cured before it is put in a mass, so that it may not lose from fermentation.

Dear sir, I am not a man of science and learning, and am not in the habit of writing for the press; but, sir, if there is any thing herein contained, that you shall think worth an insertion in your valuable paper, you are at liberty to insert it, after correcting mistakes. Yours, &c. SETH JOHNSON.

We think Mr. Johnson is right, in his practice and in his reasons. Hay loses in its nutritious properties—the properties which nourish and fatten the animal—call it oil, or sugar, or mucilage, or what you will, by long exposure to the rays of a hot sun. *We* also dry in small cocks, after the grass is wilted. It then dries all alike, except a portion upon the surface of the cock—the baneful influence of the sun is excluded—an equalization of moisture takes place, and if left to cure here, it never afterwards heats in the mow or stack. Hay exposed several days to the sun loses its color and much of its nutriment.—*Conductor.*

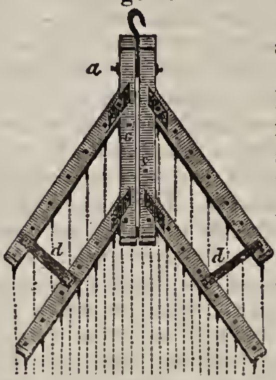
Jesse Buel, Esq.—Sir—I am induced to call the attention of sheep farmers, to a subject of deep interest, through the medium of your valuable and extensively circulated publication, the Cultivator, which I hope may tend to arrest the progress of a disease that is at present reducing the flocks in many parts of this state; so far as I can ascertain this loss is confined to the full blood merinos. I made a considerable addition to my flock in November last of this breed, and they appeared to thrive well until the middle of January, about which time a few lambs were frozen to death by the unusual severity of the season; however, since then the mortality continues notwithstanding the greatest care of them, in food and shelter.—Such as appear to droop are housed in my barn, where they have an ample supply of the best hay, ground oats and peas, and pure water—I may add, the whole flock have had good feed throughout the winter, with a due allowance of salt. This disease commences by partial paralysis of the limbs, prostration of strength ensues, and the animal seldom survives the fifth day. On taking off the pelt and examining the carcass, it is found to be highly offensive, and the intestines and flanks in a putrid state, although the infected animal continues to feed well, in no instance has one recovered. Should any of your numerous subscribers have been successful in curing this malady, I hope they will make their remedy known for the public good. As the growth of wool has become a national object of magnitude, allow me to suggest, that the publication of a work on the management of sheep, in the different countries of Europe, and the mode of treating their diseases, might prove highly beneficial to the sheep farmers of this country, who I have no doubt, would give their united support to such a work, if undertaken by a competent person. In our northern states, where the greatest proportion of sheep are raised, the mode of management and diseases incident to them, must differ essentially from the comparatively mild climate of Spain, from whence the merino breed was introduced. A SUBSCRIBER.

Hartwick, Otsego Co., Feb. 25th, 1836.

IMPROVED HARROW.

Geddes, February 10.

Fig. 3.



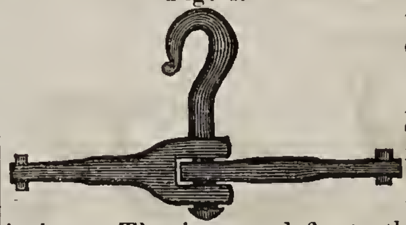
Sir—In obedience to your request, I send a drawing of my harrow.

Description.—*a* and *b* hinges, which allows it to fit into unevennesses of the surface passed over. The hinges being inserted from corner to corner of the timber, the harrow will be more portable, as one half can be laid over on the other, while moving it from field to field.

The hook by which it is drawn, is a continuation of the pivot on which the hinge turns, as shown on a larger scale, fig. 4.

The teeth, *c c*, are curved, otherwise the tracks made by them will be too far apart.

Fig. 4.



d d, two Swedes' bars, bolted on the top of the wood and fastened by screws above.

The side pieces have tenons, passing through the middle pieces, the joints being secured by iron plates above and below, riveted together. The size of the timber, three by three and a half inches. The iron used for teeth, is seven-eighths of an inch square, and running within two inches of each other, the thirty teeth make a breadth of four feet ten inches, every part of which is harrowed alike fine.

Teeth passing so nigh each other as within two inches from centre to centre, is perhaps more than would be necessary for common use. Twenty-two teeth, so set as to run within three inches of each other, making a breadth of five feet three inches, would make a lighter harrow, and do the work as well as a square harrow with thirty teeth. Your humble servant,

Jesse Buel, Esq. GEO. GEDDES.

To J. Buel, Esq.—Sir—I have read most of the periodical works on agriculture, which have appeared on either side of the Atlantic, but not till very recently, the *Cultivator*: the twenty-three first numbers of which were lent me by a friend, and after an attentive examination of their contents, I can sincerely say, that I consider it one of the best conducted and most useful publications upon the subject that I have yet perused. I have requested your agent in this city, to procure me all the published numbers, and shall, in future, be a constant subscriber and occasional contributor.

I beg to offer the following hasty and desultory observations as my first communication. Writing anonymously, (for reasons mentioned in the accompanying private note,) it may not be improper to state, that I am no novice in agriculture, having for several years, before I arrived in this country, occupied a quantity of land more than would suffice to form twenty farms, which would be considered large in this vicinity, and I now farm 400 acres of excellent soil. You, sir, and your subscribers, may rely upon my stating nothing, as matter of fact, which I do not *know* to be so.

In the Cultivator of January last, page 168, your intelligent correspondent, Mr. L. F. Allen, uses the following language: "I hold that there is no straw, corn, fodder or grass, cut on a farm, *with the exception, perhaps, of the straw of peas, beans, and buckwheat,* but what may be consumed as *food.*" This is calculated to impress inexperienced readers with an idea that *the excepted arti-*

cles are, at least, of *doubtful* value as food. Now, sir, I can assure Mr. Allen, from experience, that the straws of peas and beans (*Phaseoli)* are the most valuable food for stock of any straws that he can grow upon his farm. Many of the finest farm-teams in Great Britain, are maintained on them through the first months of winter, without any hay, and the haulm of peas, well harvested, is considered by intelligent farmers there, as fully equal to hay in feeding sheep: all horned cattle will thrive upon it. Of course both these straws should be cut sufficiently small. As to the straw of buckwheat, I have no experience, but I know that this plant, cut when in bloom, makes good hay. I beg respectfully also to submit for the consideration of Mr. Allen, and your readers, whether the plan of his barn, as described by him in the same number, is not liable to the following objections. 1st. That its being entirely surrounded by stables and cattle houses, might prove injurious to the grain, &c., deposited in its bays, upon which the warmth and breath of the circumjacent animals must produce *some* effect. 2nd. That the dung and urine of the stock, cannot be conveniently collected into one mass, and the latter into one and the same reservoir. To cellars under barns, *for the reception of manure*, I have an insuperable objection: independent of the injurious effects that must result from the exhalations of the large mass of manure in a state of fermentation, the most serious accidents may occur by the trap-doors, necessary to precipitate the manure from the stables into them, being carelessly left open, or not securely closed. I had a most valuable mare dreadfully mangled by her hind leg slipping into such an aperture. A quadrangle, with the principal barn on the north, and the entrance on the south side, or at the south-west corner, is certainly the best form for a farm-yard.

I have seen several remedies for the ravages of those pests, the *cut-worm* and *turnip-fly*, and, among others, lime has been recommended as specific. To prevent your readers wasting their time in useless experiments, I will relate the result of two which I made last summer. I placed three cut-worms in a saucer, filled with earth and fresh slaked lime in equal parts. On visiting them a few hours afterwards, I found two had escaped; these I discovered at a short distance in high health. I restored them to their less impatient companion and placed a board over the saucer to prevent further escape. On the following day all were alive and merry, though their backs were as white with lime as a miller's with flour dust. Having a small bed of turnips attacked by the fly, I scattered quick lime and ashes over them early in the morning, while the dew was on; at twelve o'clock I found the insects as busy as ever at their work of destruction, and counted no less than five on the seed leaves of a single plant thickly powdered with the "*remedy*." I apprehend that lime, in fine powder, thinly spread, becomes almost instantly carbonated and effete by exposure to the atmosphere. Can any of your correspondents mention an instance where lime has *certainly* been the *sole* cause of destruction to the aforesaid nuisances? *Natural* causes frequently produce effects which experimentalists are too apt to attribute *artificial* applications.

I last spring sowed *mangel wurzel* at various distances, to ascertain which was the most advantageous. A workman who was carting manure, having carelessly left the gate open, great part of my crop was eaten by cows, but of the remainder I found the plants which stood only one foot apart as large as those at greater distances; both were an excellent crop. I would recommend that the rows should be just far enough apart to admit the cultivator, and that the plants should not be left more than ten inches or a foot asunder. Even if a less weight should be produced by close planting, the quantity of nourishment would probably be as great or greater; for M. Chaptal asserts, that beets of one or two pounds weight, yield, in proportion, double the amount of sugar to that which is produced by roots of ten or twenty pounds, and sugar is nourishment. The smaller roots are much more conveniently prepared for the manger, &c. I have fifteen acres of land, cleared two years ago, which produced last year an immense crop of *wheat straw*, but scarcely fifteen bushels of grain per acre. The soil is a deep, warm, sandy loam, among which lime stones are thinly scattered. This field I shall plant next May with early twelve rowed Indian corn, at various distances, and carefully note the produce per acre, of each division. The result shall be communicated to the Cultivator. I am, sir, very respectfully, yours.

Boston, February 17, 1836. COLONUS.

☞ Several communications are unavoidably omitted till our next.

AN ESSAY ON GRASSES.

At the request of a gentleman proposing to publish an agricultural work, we drew up for his use, some time ago, a compendium of Loudon's chapters on grasses, omitting such parts as were deemed of little use here, and adding such facts as were most likely to render it serviceable to American husbandry. The projected work was not published; and the manuscript having been returned to us, we now proceed to publish it in the Cultivator, as well in reply to many inquiries which have been addressed to us on this subject, as in the hope of rendering an acceptable service to all our patrons.

OF THE CULTURE OF HERBAGE PLANTS.

Under this head Mr. Loudon has embraced the clovers, lucerne, saintfoin (*Hedysarum onobrychis*) burnet (*Poterium sanguisorba*) ribwort plantain *(Plantago lanceolata)* the whin *(Ulex europeus)* the spurry *(Spergula arvensis)* the broom *(Spartium scoparum)* the parsley *(Apium petroselinum)* the birdsfoot trefoil *(Lotus corniculatus)* the wall flower, yarrow, &c. As the saintfoin is peculiarly adapted to chalk soils, of which we have none, and as every attempt to cultivate it in this country has proved unsuccessful;—and as the other plants enumerated are either considered as noxious, or unfitted for field culture here, the notice of this chapter will be limited to the clovers and lucern.

The cultivation of clovers and herbage plants, used exclusively as food for live stock, is comparatively a modern improvement. They were not introduced into Britain till the sixteenth century. Their introduction among us, on any thing like a general scale, was far more recent, and indeed may be said to be among the improvements of the present century. But at present clovers are deemed indispensable in all good farming; and particularly on light soils and in alternate husbandry.

In Flanders, where husbandry underwent its earliest improvements, and where it is found now most to excel, clovers are deemed indispensable to good husbandry. Upon their cultivation, says Radcliff, hinges apparently the whole of the farmer's prosperity. "Without clover, no man in Flanders would pretend to call himself a farmer." It is there used, as it should be here, as food for both plants and animals.

Sec. 1. *The clover family—Trifolium L. Diadel. Duan L. and Leguminoseæ J.*

The species of clover in cultivation are the *red clover (Trifolium pratense)* a biennial, and sometimes, especially on chalky soils, a triennial plant, known from the other species by its broad leaves, luxuriant growth, and reddish purple flowers.

The white, or creeping, or Dutch clover (T. repens) is a perennial plant, known by its creeping stems and white flowers.

The yellow clover, hop-trefoil, or shamrock clover (T. procumbens) a biennial, known by its procumbent shoots, yellow flowers and black seeds.

The cow grass, meadow clover or marl grass (T. medium) a perennial, resembling the red clover, but of a paler hue, dwarfer habit, with pale red or whitish flowers, and long roots, very sweet to the taste.

Trifolium incarnatum, an annual, a native of Italy, but little known either in the U. States or G. Britain, and the character of which for usefulness cannot yet be fully decided on. Will not endure our winters, but would probably do in Pennsylvania and south.

In the choice of sorts, the red or broad leaved is most generally cultivated. It yields the heaviest burthen. Yet some prefer the cow grass, distinguished in the northern states as southern clover. It comes in flower, and is fit to cut, ten or fourteen days earlier than the broad variety. It will yield a crop of hay, and afterwards a crop of seed.

The white and yellow clovers are seldom sown to any extent.—They come in spontaneously on many soils, and are a valuable accession for pasture uses.

The soil best adapted for clover is a deep sandy loam, which will freely admit the long tap-roots; but it will grow in any soil, provided it be dry. Calcareous soils are peculiarly congenial to clover; and the application of lime or gypsum, upon most soils, will call into action clover seeds, which would appear to have before lain dormant. Plaster of Paris has a magic influence in accellerating its growth, where this mineral is not neutralized by the influence of marine air; and when this is the case, lime and ashes serve as good substitutes.

The time of sowing is commonly in the spring, with the spring crop, and before the last harrowing; or upon winter grain in March or April, followed by a light harrow, and sometimes without it. Yet clover is often sown in Sept. or Oct. with the seed corn. The objection against the latter practice is, that the tender plants are liable to be destroyed by the winter. Rolling the ground after the seeds have been covered by the harrow is of manifest advantage: It produces a smooth surface, breaks the clods, and compresses the earth about the seeds, and thus facilitates their germination. A light harrow may also be employed in the spring, upon winter grain, with advantage to the grain and seeds.

The quantity of seed sown on an acre, depends upon the quality of the soil, the purpose to which the field is to be applied, and the quantity of grass seeds sown with it. As much of the seed sown upon clays does not germinate, allowance should be made for the failure; yet upon these and wet grounds the main dependance, after the first year, is upon timothy or other grasses sown with it. If the object is pasture, the variety of seeds should be as extensive as practicable, as the object is to obtain an abundance of food at all seasons, and to render it perennial. Timothy and herdsgrass *(red-top)* are suitable accompaniments on moist, and orchard grass and tall meadow oat grass on dry grounds. The usual quantity of seed sown on the acre is about ten pounds, though in Great Britain it is often increased to fourteen pounds, while in Flanders it is but six pounds, though there the land is admirably fitted to receive it.

The after culture of clover consists in freeing the surface of stones and sticks, the soil from docks and thistles, and in applying an annual top-dressing of gypsum, or when this is inoperative, of lime or ashes. The top-dressing is best applied in the spring before the clover begins to grow. Upon lands annually dressed with plaster, a bushel is considered a sufficient dressing for an acre, though greater quantities are often applied with advantage.

The making clover into hay is a process different from that of making hay from natural grasses. All herbage plants abound most in nutriment, and should be cut, before the seeds are formed, and indeed before fully in blossom, that the full juice and nourishment of the plant may be retained in the hay. A crop of clover, when cut in the early part of the season, may be ten per cent lighter than when it is fully ripe; but the loss is amply counterbalanced, by obtaining an earlier, a more valuable, and more nutritious article; while the next crop will proportionably be more heavy. The hay from old herbage will carry on stock, but it is only hay from young herbage that will fatten them. When the stems of clover become hard and sapless, by being allowed to bring their seeds towards maturity, they are of little more value as provender than an equal quantity of the finer sort of straw.

The mode of making clover hay, as practised by the best farmers, is as follows: The clover is cut close to the ground, in as uniform and perfect a manner as it is possible to accomplish, by the scythe kept constantly sharp. What part of the stem is left by the scythe is not only lost, but the aftergrowth is neither so vigorous nor so weighty as when the first cutting is taken as low as possible.

As soon as the swath is partially wilted, let it be gently turned over, but not spread or scattered, without breaking it. This may be done with forks or rakes. If the weather is fair, and the clover cut in the morning, the swaths may be turned after dinner; and if mowed after noon they may be turned before evening; at which time those turned after dinner may be put into grass cocks. This last operation should be performed with care, and in this manner. Three swaths are appropriated to a row of cocks. The laborer gathers a good fork full, and deposites it on the centre swath, if the ground is dry, if not in one of the intervals, putting it down gently, so that the cock may present a small base; he then continues to gather and deposite in the same way until the cock is brought to a point, at the height of 4 to 5 feet, according to the dryness of the clover,—the dryer this is the higher the cock may be made. When completed the grass cock is two to three feet broad at the ground, tapering to the apex, and the projecting ends of the herbage drooping, so as to carry off the rain which may fall. The points to be regarded are, to cock before the leaves begin to crumble, and not to suffer the dew to fall upon the dried surface of the swath. These grass cocks may stand to advantage 36 hours without any prejudice, and should not be opened until there is a fair prospect of obtaining a few hours of good weather to complete the curing process. When this is the case, open the cocks as soon as the dew is off, spread them partially, four to six inches thick. If the day is good the spread clover may be turned over between twelve and two, and in an hour or two afterwards gathered for the barn. By this process of curing the leaves are all preserved, injury from dew and rain is in a great measure avoided, the stocks are better dried, and the appearance and value of the forage is retained in its highest perfection. If rain is apprehended, after the grass cocks have stood a night, these may be doubled, by putting one upon the top of another, and dressing with a rake. An intense sun is almost as prejudicial to clover as rain; and therefore it should not be shook out, spread or exposed, oftener than is necessary for its preservation. The more the swath is kept unbroken, the more green and fragrant will be the hay.

The secret of making good hay, says Low, is to prepare it as quickly as possible, and with as little exposure to the weather, and as little waste of the natural juices, as circumstances will allow.—When we are enabled to do this, the hay will be sweet, fragrant and of a greenish color.

The produce of clover, on the best soils, is from two to three tons per acre, and in this state, in the London market, it generally sells 20 per cent. higher than meadow hay, or clover and rye-grass mixed.

The nutritive products of clovers will be found in the table at the close of the next chapter.

The produce in seed is stated by Dickson at from three to five bushels per acre. Clover will not perfect its seeds, if saved for that purpose early in the year; therefore it is necessary to take off the first growth, or keep it down with sheep till late in May, either by feeding or with the scythe, and to depend for the seed on those heads that are produced in autumn.

ON THE USE OF LIME AS A MANURE.

BY M. PUVIS.

Translated for the Farmers' Register from the *Annales de l'Agriculture Francaise*, of 1835.

ON THE DIFFERENT MODES OF IMPROVING THE SOIL.

To improve the soil is to modify its composition in such manner as to render it more fertile.

The definition, which might be extended to manures charged with vegetable mould [*humus*] or animal substances, which also modify the composition of the soil, is limited by French agriculture to substances which act upon the soil, or upon plants, without containing any notable proportion of animal or vegetable matter.

It is said that manures, [putrescent or enriching,] serve for the nutriment of plants. But it is the same as to substances improving to the soil, which furnish to it matters which it needs to be fruitful, and which furnish to vegetables, the earths and saline compounds which enter as essential elements in their composition, their texture, and their products. Such improving substances ought well to be regarded as nutritive.

Thus lime, marl, and all the calcareous compounds employed in agriculture, since they furnish lime and its compounds, which sometimes form half of the fixed principles of vegetables, ought also to be considered as aliments; or, what comes to the same, as furnishing a part of the substance of vegetables. Thus again, wood-ashes, pounded bones, burnt bones, which furnish to vegetation the calcareous and saline phosphates which compose a sixth of the fixed principles of the stalks, and three-fourths of their seeds, ought well to be considered, and surely are, nutritive.

What then particularly marks the distinction between manures which improve the soil [*amendemens*,] and alimentary manures, [*engrais*,] is, that the former furnish, for the greater part, the fixed principles of vegetables, the earths, and salts, which are not met with ready formed, neither in the soil or in the atmosphere; while alimentary manures furnish a small part of the volatile principles which are abundantly diffused throughout the atmosphere, whence vegetables draw them, by means of suitable organs: and what is most remarkable, is, that the vegetable, by receiving the fixed principles of which it has need, acquires, as we shall see, a greater energy to gather for its sustenance the volatile principles which the atmosphere contains.

The greater part then of the soils, to be carried to the highest rate of productiveness, require manures to improve their constitution. Alimentary manures give much vigor to the leafy products—but they multiply weeds, both by favoring their growth and conveying their seeds—and they often cause crops [of small grain] to be lodged, when they are heavy. Manures which improve the soil, more particularly aid the formation of the seeds, give more solidity to the stalks, and prevent the falling of the plants. But it is in the simultaneous employment of these two means of fertilization by which we give to the soil all the active power of which it is susceptible. They are necessary to each other, doubling their action reciprocally: and whenever they are employed together, fertility goes on without ceasing—increasing instead of diminishing.

The greater part of improving substances are calcareous compounds. Their effect is decided upon all soils which do not contain lime, and we shall see that three fourths, perhaps of the lands of France are in that state. The soils not calcareous, whatever may be their culture, and whatever may be the quantity of manure lavished on them, are not suitable for all products—are often cold and moist, and are covered with weeds. Calcareous manures, by giving the lime which is wanting in such soils, complete their advantages, render the tillage more easy, destroy the weeds, and fit the soil for all products.

The improving substances have been called *stimulants;* they have been thus designated because it was believed that their effect consisted only in stimulating the soil and the plants. This designation is faulty, because it would place these substances in a false point of view. It would make it seem that they brought nothing to the soil, nor to plants—and yet their principal effect is to give to both principles which are wanting. Thus the main effect of calcareous manures proceed from their giving, on the one hand, to the soil the calcareous principle which it does not contain, and which is necessary to be able to develope its full action on the atmosphere—and on the other hand, to vegetables, the quantity which they require of this principle, for their frame-work and their intimate constitution. It would then be a better definition than that above, to say that to *improve* the soil is to give to it the principles which it requires, and does not contain.

SHEEP HUSBANDRY.—No. IV.

WOOL, THE COAT OF THE SHEEP.

The laws of nature are determined above the power of man to counteract. It is almost as preposterous to attempt any permanent improvement of the (Greyhound,) and of the distinctive sheep denominated *Merino*, by any foreign admixture, as the improvement of wheat by attempting its admixture with rye or barley.

The *wild goose* sustains his distinctive character, in defiance of the arts of civilization. And Buffon, together with those who prefer their own opinion to established facts, ultimately concur in the conclusion, that the wild and tame goose cannot be permanently assimilated.

Man should be an intent, admiring, discriminating observer of *nature's* works and laws.

The human inhabitants of so large a portion of our globe, are under the necessity of so protecting themselves from cold and wet by clothing, as to render the best material an object of primary estimation. Wool, the covering of the sheep, has hitherto mostly supplied this requirement.

Wool, in its varieties of soft, fine, elastic and glossy, elicits the inquiry, on what causes are these varieties and properties dependent and influenced? All these considerations involve the philosophical considerations of the subtilty of cohesion of particles, attraction, agglutination, elasticity, light, &c. &c.

Silk in its curious properties, must here be regarded as an anomaly.

The essential or chemical properties of wool, hair and fur, are very similar, or the same; as also hoofs, nails, feathers. The specific or characteristic distinctions between these various productions, are at present principally dependent on their application to manufacturing purposes. The distinctive identification of wool, independent of its growing on the back of a sheep, are but few. The peculiar coil, or crimp of its fibre, like the coiled wire in a spring cushion, and its elasticity, are to me its most prominent features. If the best material for making cloth called wool, is found on the sheep's back, without going into distinctions of too great nicety, that is the place to go for it. The best kind of fur suitable for hats, is found on the back of the Otter and Beaver. It is an inquiry to which I would invite the curious naturalist, to point out the characteristic differences between hair, fur, wool, feathers, &c., independent of its production and application? The consideration of the covering of animals is particularly interesting. Its incorruptibility, and yet its susceptibility to change. I have seen the aboriginal remains of the human frame disclosed by excavation, of which the hair and bones were the only vestiges: the hair more perfect and entire than the bones. Yet there are on record many well authenticated instances of persons under circumstances of extreme terror and distress, having their hair turn gray in one day! I have known one person who was gray at the age of eighteen, and yet in good health. I do not know but gray hairs adhere with the same tenacity, and are as strong as others—who can explain the *modus operandi?*

Quadrupeds, in assuming their winter dress, and birds in autumnal molting, assume a dimmer coat and darker hue.

A sentiment has been promulgated, and is now vibrating on the *ear of folly*, that fine wool can only be produced on ill conditioned sheep. Compare the fine glossy coat of the courser and gig-horse, with that of the meagre and deserted hackney and dray; or the glistening plumage of the full-fed bird, and the faded feathers of the setting hen.

The wool is dependent on the condition of the skin, and the skin is dependent on the condition of the animal. Tanners understand this, and will not pay full price for the skins of animals which die of starvation or disease. Picking or plucking of wool, ought to be unknown to a good shepherd, and is even now reluctantly acknowledged by bad ones.

The non-conducting electrical property of wool, hair and feathers, a familiar instance known to all the boys, viz., stroking the back of a black cat with the hand, in a dry, cold, dark night.

There are some curious considerations, subject to the developement, or arising from the influence, of light on animal covering.—The investigation of the French naturalists, has resulted in the opinion that women, with red, auburn or sandy hair, are the best nurses. Light complexioned persons are most disposed to scrofula; dark, to a melancholic disposition. This is not to be received in disparagement of those who have black hair, for on scriptural authority, who can "make one hair white or black?" Still, there may be some such wonder—working cause in operation. Thence the popular supposition and prepossession, that red cattle and cows are better for beef and butter, and the strong prejudices against white. That white horses, and those with white legs and nose, are more subject to scratches. With white or wall eyes, skittish.—Black sheep, never fine.

Felting, or entanglement, is a property of fur better understood by experience, than can be described by language. Hair, horsehair, bristles, &c., will not felt; fur will. Wool possesses an intermediate property; the nearer it approximates fur, the more valuable for the purpose of clothing. The most perfect wool is produced on a healthy sheep, and on those uniformly kept in good condition.

Fur felting and wool felting, are somewhat analogous, from the fineness and durability of the best hats, it is obvious that wool best disposed to full will make the most durable cloth. On this principle, fine elastic wool will make more cloth per pound, and a more durable fabric. From its elasticity it yields and gives way to resistance, neither breaking like straw, or suffering friction: hence more durable. Fine wool, in its approach to fur, is also a warmer covering.

There are certain articles of traffic, denominated staple articles, that is, which are indispensable to life, viz., food and clothing.—The market is always intermediate between the vender and the purchaser, and regulates the price.

It is not the amount of stuff in pounds that is most valuable to the manufacturer, whether hair or wool, or an indefinite admixture, but wool that will make the most and best cloth for durability, warmth and beauty—having the least waste and inviting the best paymaster.

If the manufacturer will say to the wool grower, quantity is preferable than quality; and the purchaser of cloth will say to the manufacturer, coarse cloth is preferable to fine, for beauty, warmth and wear, then may we expect to see the *Goat* stand in the place of the *high-bred Merino*, and the wonderful improvement in modern machinery sacrificed to wilful ignorance.

That fine wool can be produced as easily as coarse, without capital, care and discrimination, is absolutely inadmissible, any more than purchasing *superfine* cloth at the same cost of coarse. Gold is not found in this way.

Bleaching by heavy rains, dew and fogs, although not a property of wool, is a consideration. Wool, cotton, hemp and flax, long subjected to the direct or alternate influence of great moisture and intense solar heat, loses its cohesive property. Cloth, feathers, wool, &c., soon decay upon being subjected to solar and humid atmospheric influence.

Hence the difference between the delightful, bewitching, silky curls of the miss of ten and sixteen, and the weather—beaten head of the rugged cow-boy without a hat. Age likewise exerts its influence. Could not a blind man by the touch, distinguish the difference between the downy softness of the infant hair, and the harsh covering of the aged head? Wool from a very old or diseased sheep, is diminished in firmness of texture, is not so strong. The three or four first clippings of wool are the best.

The different qualities of wool, as to length, fineness, elasticity and softness, grown on an individual sheep, have in European countries, produced an officer called *wool stapler*, or sorter, as yet little known in this country. His business is to assort the individual fleeces of a flock, and apportion it, No. 1, No. 2, No. 3, as to quality. And in this way, from experience, like the inspector of beef and pork, render it tangible to the purchaser, and at the same time fix the reputation of the flock.

If I was desirous of a judgment, I should want it by a competent judge. When we arrive at this point in our country, we shall be on fair ground. One man's flock will staple three-quarters first quality; one one-half; another one-third. Then the only inquiry of the purchaser will be, how much staple wool, No. 1, or No. 2, have you? according to his requirements as to quality. This will at once simplify the process of purchase, and establish the production of wool upon its proper basis. A *good flock* will then be a *good flock* in the *market*, by the decision of a *good judge*. A fair decision can in no case be had, but by a competent, disinterested and independent *judge*. F.

No. V.—On the habits, management of sheep, and production of wool.

Young Men's Department.

From the New-York Farmer.

THE IMPORTANCE OF EDUCATION TO FARMERS.

BY HENRY COLMAN.—*(Concluded.)*

What, however, is practical skill itself but the avails of knowledge? When a man does a thing well, even in the most humble mechanical art, we say he *knows* how to do it. Careful inquiry and observation, added to repeated trials, have taught him the best mode of operation. Now, may not others avail themselves of what he has learned, and save the expense of time and trouble necessary in repeating the experiments which he has made, and going over again and again the same ground which he has traversed? Is not the great part of all knowledge, especially that of a practical nature, the fruit or result of experiment? and wherever and however this knowledge has been obtained, ought we not gladly to use it? and does not even the most practical man, if he has any pretensions to common sense, carefully and necessarily avail himself, in every department of business, of this knowledge, which has been the acquisition and accumulation of centuries? May not this knowledge, then, be communicated in, and gathered from, a printed paper, a book, as well as in any other form? indeed in this form, rather than any other, with many obvious advantages?

If, then, knowledge is not only valuable, but indispensable in the most simple operations of practical husbandry, it is still more necessary in all its higher departments. The nature of soils, the nature and properties of manures, the varieties of plants, their seasons, cultivation and uses, the raising of animals and the improvement of their breeds, the construction of even the mould-board of a plough, are all matters of science and philosophy; which come to the man not by intuition; which are to be learnt; for the improved condition of which, we are indebted to the experiments and studies of intelligent and sagacious minds, who have given days and years to the examination and trial of them; for which even the most common farmer, who opens a furrow, is greatly in their debt. To deny the obligation, is most ungrateful; to wrap ourselves in the conceit of our own perfected wisdom, and to refuse to avail ourselves of the result of other inquiries and experiments on subjects, where we can only be said as yet to have reached the shores of the great ocean of truth, would be consummate folly.

We say that agriculture is most largely indebted to science. All the great improvements which have been made in the art, are due to science. Intelligent men, learned men, sagacious, inquisitive, scientific, experimenting men, the bright lights of society, who are always in advance of their age, are the men who have led the way in agriculture, as well as in every other improvement in society.—They have brought the power of mind to bear on this great subject; and wherever its rays have been concentrated, they have kindled a flame which has served to cheer and to guide the humble laborer, otherwise groping in darkness, to treasures buried in the earth, which, without it, he never could have reached, and whose existence, otherwise, he never would have suspected. Science, within a century, has more than quadrupled the products of the earth; has immeasurably abridged the toil of the husbandman; and has made the labor, which he does bestow, ineffably more efficient than, without its aid would have been rendered. To science we owe the improved form of the plough, which will do twice the work, with half the power, which could have been executed by the clumsy implement of not many years since. To science we owe the cultivator, the roller, the threshing mill, the cotton gin, the sugar press, the flour mill, the spinning jennie; and but for science, but for what is contemptuously termed book-knowledge, we must now have been satisfied with wearing the skins of our flocks, unshorn of their wool; and have been left to the miserable necessity of planting our corn with a stick or a clamshell; and grinding it in a hollow stone, with an Indian pestle.

What science has yet in store for agriculture, no sagacity can foresee. If we may judge from what it has done, we may look forward to most extensive and more valuable improvements. Education is most important and useful to the farmer, in enabling him to avail himself of what has already been achieved; and in qualifying him for, and stimulating him to, new advances. In the art and science of agriculture, let men speak of it with what disdain their ignorance or self-conceit may prompt, there is room and occasion for the exercise of the highest intellectual abilities; here, as in every other case, knowledge is power; and knowledge constitutes a productive capital; and here, other circumstances being equal, knowledge will not fail to give all the advantage over ignorance, which it confers in any other department of business or of life.

We urge the importance of education upon the farmer, as among his greatest and most valuable resources of comfort and enjoyment. The farmer, even in the most busy situation, but especially remote from the city, has abundant leisure for reading and intellectual improvement. There are many stormy days when his out-door labors are omitted; there are his Sundays, which, with the exception of the hours devoted to public worship, are usually uninterrupted; there are long and still evenings of winter, which, without some intellectual resources are most likely to be spent in stupid drowsiness, or too often, in a manner far worse, at the shop or the tavern. What favored seasons are these for the delightful companionship of books! what inexhaustible sources of innocent and refined pleasure are here opened to a man's self! and what abundant opportunities for communicating instruction and pleasure to one's family! and with respect to the young especially, hanging upon us with all the confidence of affection and reverence, of laying a foundation and adopting the best means for their improvement! "Studies," says Bacon, "serve for delight, for ornament, and for use." Cicero passes a still higher encomium upon them, in his beautiful oration for Archias. "Studies give strength in youth, and joy in old age. They adorn prosperity and are the support and consolation of adversity. At home they are delightful to us; they present no impediment to business; they pass the night with us; they are the companions of our journies; and they give a charm to our rural retirements." Education immensely enlarges the capacity and disposition to receive pleasure from natural phenomena, objects, and scenery. The scientific classification of the clouds makes them objects of new interest. The knowledge of the names and places of the stars introduces us to a kind of living and almost speaking familiarity and companionship with them, which enlivens the solitude of the stillest evening, and the most retired walk; and fills the mind with noble, elevated, and irrepressible aspirations. Botany, chemistry, mineralogy, multiply, indefinitely, our sources of pleasure, and give an interest and value to objects, which we might otherwise trample upon without notice, or pass by with utter indifference. Natural philosophy, natural history, in all their branches, people every part of the physical world, to which we can have access, with objects of delightful and absorbing interest; and to the inquisitive and enlightened mind, unlock treasures infinitely better than golden treasures which are hermetically sealed to the incurious and ignorant. Before the farmer, the privileged resident in the country, the book of natural theology spreads its instructive, ample, and brilliant page. The most ignorant can scarcely remain always unmoved by it; but study and science are necessary to read it with advantage and effect. The enlightened mind only can interpret, with a force and eloquence true to the original, its mystic characters, and penetrate the depths of its fountains of wisdom; the enlightened mind only can see, in the greatness, grandeur, and glory of the works of nature, its overpowering demonstrations of design and skill; its wonderful exhibitions of creative power and wisdom; its exuberant, unbounded, and inexhaustible pourings out of beneficence and love.

But I must stop. I fear I have already drawn too largely on the indulgence of my readers. I have thrown out these very general notions of the importance of science and education to farmers, as preparatory to some more detailed and practical views, which, at a future and convenient season, I may take occasion to lay before the readers of the New-York Farmer. There is, I repeat it, as it seems to me, no class in the community to whom education, scientific and literary education, is more important than to the farmers. There is no business-pursuit or profession, exclusive of the learned professions, whose situation is, in most respects, more favorable to it, and there is none, which it would more benefit and adorn. Could more educated men be induced to enter the profession; or rather, could there be all necessary and suitable provision made for educating those, who are disposed to make agriculture the business of life, incalculable benefits would result from it to the community. It would place the profession, in the public estimation, where it belongs, as among the most innocent, useful, honorable, and happy in which men can engage; it would qualify the agricultural class, whose character and influence so essentially concern the honor and welfare of the country, for the right performance of their high duties; it would serve vastly to extend the agricultural resources and multiply the products of the country, and thus immeasurably increase its wealth and power; it would diffuse, in unimaginable amount the means and resources of domestic comfort and enjoyment; and, as in every other case of the advancement of the spiritual and intellectual over the animal and sensual nature, it would spread a salutary moral influence through all the circulations, and to the utmost limits of the social body. *Meadowbanks, Nov.* 1835.

Proceedings of the Agricultural Convention,

(Continued from our Extra.)

To advance these interests—to add new stimulus to industry, care, skill and economy, in increasing the productiveness of our rich soils, and in adding fertility to the poorer; to improve the condition and increase the profits of farm stock of every description; to make the various implements of husbandry more perfect, economical and useful; and generally to adapt the improvements and discoveries in science to agricultural pursuits, have occupied the anxious attention of your committee, and they regret that their time will not allow them to detail and explain the various reasons and motives which have influenced them in presenting and recommending the following resolutions for the adoption of the convention:—

Resolved, That it is expedient to provide by law, for the establishment of a school of scientific and practical agriculture, and that this convention respectfully solicit the legislature of this state to incorporate a company for the above objects, and to endow the said school with such sum, and in such manner, as shall be commensurate with the great benefits to be attained thereby.

Resolved, That an appropriation of public moneys, to excite industry and emulation in agriculture, to reward those who make important discoveries in labor-saving machines, or in other departments of husbandry; or who improve or extend useful methods of cultivation, would tend greatly to increase the resources and revenue of the state, and to promote the diffusion of useful knowledge.

Resolved, That the extensive and increasing ravages of the wheat worm, present a strong claim upon an enlightened legislature, alive to all the interests of her people, to offer a competent premium for the discovery of a perfect preventive or remedy for the ravages of the said worm.

Resolved, That it be recommended to the friends of agricultural improvement, in every county in this state, to co-operate with this convention in obtaining legislative aid in furtherance of the objects of the above resolutions, and also in the speedy formation of an agricultural society in every county where there is not one already.

Resolved, That the existing laws in relation to commen roads and bridges, are found, by experience, to be very defective and oppressive, inasmuch as the heavy tax which is annually imposed for these objects, is expended so lavishly, injudiciously and temporarily, as to produce no corresponding benefits to the tax-payers or to the community; and in the opinion of this convention, the whole system requires alteration and amendment.

Resolved, That the agricultural publications, entitled the "Cultivator," published in Albany; the "Genesee Farmer," published in Rochester, and the "New-York Farmer," published in New-York, are eminently calculated to diffuse agricultural knowledge, to make known the various improvements in husbandry, and to excite and call forth new and valuable discoveries, and that they are therefore recommended to general attention and patronage, and particularly to that of the farmers.

Resolved, That as property of every description is continually changing hands in a republican government like ours, and real property not more productive or valuable than personal, in the opinion of this convention, all property, real and personal, should be subject to the same general rule of taxation—assessed and taxed equally wherever the same may be, and in whatever hands it may be found, without regard to ownership or indebtedness.

The above resolutions having been severally read, were unanimously adopted by the convention.

On motion of Mr. Van Bergen of Greene,

Resolved, That the paper entitled the "Silk-Worm," published in this city, be added to the list of those recommended to the patronage of the community.

Mr. Allen, from the committee of sixteen, reported a memorial to the legislature, which, being read, was adopted, and ordered to be signed by the officers of the convention.

Tuesday Evening, 7 *o'clock.*

The convention met pursuant to adjournment. On motion of Mr. Shepard of Cayuga, it was

Resolved, That the thanks of this convention are due to the Hon. J. A. Dix, Secretary of State, for his very able and luminous report in relation to the geological survey of the state, made to the legislature Jan. 6, 1636, in pursuance of a resolution of the assembly, April 6, 1835, and they express the hope that the legislature will make the appropriation for the purposes recommended in said report.

On motion of Mr. M'Collum of Niagara, it was

Resolved, That such provision be made, as the legislature shall deem expedient, to encourage the growth and manufacture of silk.

On motion of Mr. Allen of Erie,

Resolved, That this convention recommend the introduction of elementary works on agriculture and horticulture, as reading books in our common schools.

On motion of Mr. Nash of Monroe,

Resolved, That a state agricultural convention be held at the capitol in the city of Albany, on the first Thursday of February next, at four o'clock P. M. at which all persons are invited to attend, who take an interest in agricultural pursuits.

On motion of Mr. Frey of Montgomery,

Resolved, That a copy of the opening address of Judge Buel to the convention, be requested for publication; and that Mr. Carroll of Livingston, and Mr. Allen of Erie, be requested to furnish a copy of their remarks for the press.

On motion of Mr. Hopkins of Cayuga,

Resolved, That the thanks of this convention be tendered to the house of assembly, for the use of their chamber during its sitting.

On motion of Fuller of Onondaga,

Resolved, That the thanks of this convention be given to the president, for the able and dignified manner with which he has discharged the duties of the chair.

On motion of Mr. Leland of Steuben, the convention adjourned.

J. BUEL, *President.*
J. M'CALL, L. BRADISH, } *Vice-Presidents.* { G. WENDELL, P. PATTERSON,
D. L. DICKINSON, and J. J. VIELE, *Secretaries.*

MEMORIAL TO THE LEGISLATURE.

The following is the memorial alluded to in the above proceedings:

To the Legislature of the state of New-York:

The memorial of the subscribers, inhabitants of the state of New-York, assembled in agricultural convention, at the capitol in Alny, on the 9th February, 1836—Respectfully represents:

That your memorialists consider that an acquaintance with the principles of the physical or natural science, embracing the properties of soils and manures—a knowledge of the structure and functions of animals—of the diseases to which they are incident, and the modes of cure;—of the principles of mechanics, in their application to implements of farm labor;—of the agency of heat, air, water and light in the growth of farm crops—and of new plants, their mode of culture, and use in the arts or commerce—as highly essential, in the cultivators of the soil, to the successful prosecution of husbandry, in this age of general improvement. That agriculture is the great business of our state, and the main source of its prosperity—and that no means present to their minds, so likely to ensure substantial improvement in this primary branch of labor, as the establishment of a school of scientific and practical agriculture, which shall embrace the best models of practice in all the departments of rural labor: That three committees of the legislature have reported in favor of the establishment of an agricultural school, with accompanying bills providing therefor, two contemplating the establishment to be made under the auspices, and at the expense of the state, and the other granting corporate powers to an association who had prayed to be incorporated for this purpose; that the latter bill passed the house of assembly with three dissenting votes; but that this, as well as the other bills, were not finally acted upon, by reason of the late period in the session in which they were introduced, and the press of public business:—your memorialists pray for an act of incorporation, with a restriction therein, limiting the dividends to be derived from such institution to five per cent per annum, for the above objects, and to endow such institution with such sum, and in such manner, as shall be commensurate with the great benefits to be attained thereby.

Your memorialists further represent, that they are persuaded great benefits to agriculture, and to the substantial interests of the community at large, have resulted from the law of 1819, "to improve the agriculture of this state," by the stimulus which it gave to industry, and the improvements which it induced in the various branches of husbandry; and believing that a further appropriation would be alike beneficial, in developing the capacities of the human mind, and of the soil, for improvement, and in augmenting the resources and revenues of the state,—they respectfully solicit that an appropriation be made, with the view of exciting laudable emulation, and of rewarding those who make important discoveries in labor-saving machines, or in other departments of husbandry—who introduce new and valuable breeds of animals, plants or seeds—or who improve or extend useful methods of cultivation, and that they believe such appropriation would tend greatly to increase the resources and revenues of the state, and to promote the diffusion of useful knowledge.

And your memorialists further represent, that within the last years, an insect, denominated the grain worm, before unknown among us, has committed serious depredations upon the wheat crop, in the northeast counties of this state; that it is progressing south and west, and threatens immense damage to this great staple product of our state, unless efficient means can be discovered to prevent its ravages: your memorialists would respectfully suggest, that the legislature offer a pecuniary reward, of sufficient amount to call into action the scientific and practical talents of our citizens, for the discovery of a preventive of the evil—the reward to be withheld until the efficiency of the preventive shall be fully and satisfactorily established.

J. BUEL, *President.*
J. M'CALL. L. BRADISH, } *Vice-Presidents.* { G. WENDELL, P. PATTERSON,
D. S. DICKINSON, and J. J. VIELE, *Secretaries.*

☞ The first vol. of the Cultivator having been sold out, we are in want of Nos. 2, 3, 4, 5 and 6, to make out sets. Persons having any of these numbers to spare, will be allowed double the original price, by forwarding them, by mail or otherwise, to the Conductor.

SEED STORE.—GARDEN AND AGRICULTURAL SEEDS, TOOLS, &c.—W. THORBURN, Seedsman, No. 325 North Market-street, opposite the Post-Office, keeps constantly for sale a general assortment of Garden and Farm Seeds, Gardeners' Tools, Agricultural Implements, standard books upon Agriculture and Horticulture: also, bulbous flower roots, choice flower seeds, bulb glasses, flower pots, Canary birds and cages, &c.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 30th of January and 2d of March inclusive.—Numbers under ten not noticed.

POST-OFFICES.	
Ashtabula, Ohio,	15
Ashville, N. C.	11
Augusta, N. Jersey,	11
Batavia, Genesee,	11
Bouckville, Madison,	11
Buckingham c. h. Va.	32
Bardstown, Ky.	11
Bloomingburgh, Or.	33
Brookeville, Md.	11
Carlton, Md.	22
Cooperstown, Ots.	16
Charlotte, Mon.	11
Chillisquaque, Pa.	22
Catharine, Tioga,	11
Chelsea, Vermont,	10
Cortland village, Cort.	15
Chittenango, Mad.	25
Chapinville, Conn	11
Camden, Del.	34
Champion, Jeff.	22
Centreville, Md.	14
Deckertown, N. J.	11
Dundee, L. C.	15
Elk-ridge Landing, Md.	22
Elmira, Tioga,	31
Exeter, Otsego,	11
Fishkill, Dutchess,	12
Farmington, Conn.	16
Geneva, Ont.	17
Greenwich, N. J.	11
Galena, Illinois,	20
Georgetown, Del.	13
Gansevoort, Saratoga,	11
Gallipolis, Ohio,	17
Hillsborough, Ohio,	20
Holland Patent, One.	12
Hughesville, Pa.	11
Hamburgh, N. J.	11
Hampton, Wash.	13
Hartford, Wash.	14
Jennings' Ordinary, Va.	11
Jonesville, Mich.	13
Leedsville, Dutchess,	10
Lawrenceville, N. J.	11
Lebanon, Mad.	17
Leeds, Greene,	11
Laport, Indiana,	22
Lanark, U. C.	22
Lyons, Wayne,	22
Mechanicsville, Md.	11
Middletown, Ky.	11
Middletown, N. J.	11
Manchester, Ont.	11
Mannsville, Jeff.	11
Milford, Ots.	14
Meadville, Pa.	11
Mechanicsville, Sar.	11
M'Lean, Tompkins,	10
Mansfield, Con.	11
Kingston, N. J.	11
New-Paltz landing, Ul.	14
North Argyle, Wash.	11
Newbern, Va.	11
New-Hartford, One.	25
New Berlin, Pa.	22
New-York city,	33
Northampton, Mass.	45
Newton, N. J.	22
Oxford, Chenango,	27
Oak Hill, Greene,	11
Palmyra, Mich.	15
Pittstown, Rens.	11
Philadelphia, Pa.	32
Prattsburgh, Steuben,	10
Pittsfield, Mass.	33
Portland, Chaut.	15
Queensbury, Warren,	11
Quebec, L. C.	22
Reading, Pa.	46
Smyrna, Del.	11
Springfield, Ontario,	12
Stuyvesant, Col.	12
Sharon, Con.	11
Smithtown, Suff.	34
Salisbury, Con.	23
Sherburne, Chen.	13
Sangerfield, One.	22
Stanton, Va.	22
Troopsville, Cay.	11
Trumansburgh, Tomp.	17
Trappe, Md.	11
Tomhannock, Rens.	17
Ulsterville, Ulster,	11
Vernon, Oneida,	22
Vernon centre, One.	11
West Avon, Liv.	10
Walcott, Conn.	11
Wallace, Ohio,	11
Warwick, R. I.	10
Warwick, Orange,	18
Westmoreland, N. H.	22
Washington, D. C.	11
Warren, Herkimer,	14
West Winfield, Herk.	22
Yonkers, Westches.	11
Ypsilanti, Mich.	11

PRICE CURRENT.

ARTICLES.	N. York. Feb. 29.	Boston. Feb. 29.	Philadel'a. Feb. 29.	Baltimore. Feb. 26.
Beans white, bush.	2 14—2 40	1 75—2 00	....	1 25—1 50
Beef, best. cwt.	....	6 00—6 50	....	
Butter, fresh, pound,	25— 27	19— 22	17— 18	
Cheese, pound,	8— 9	8— 9	9— 10	
Flour, best, bbl.	7 00—7 75	8 00—8 12	6 75—	7 00—
GRAIN—Wheat, bushel,	....	....	1 40—1 50	1 45—1 50
Rye, do.	1 00—1 03	1 05—1 06	85—	90— 95
Oats, do.	70— 72	65— 70	41— 44	40— 44
Corn, do.	82— 85	92— 95	81— 83	77—
SEEDS—Red Clover, lb.	9— 10	10— 11	5 00—5 25	
Timothy, lb.	....	....	2 00—3 00	
WOOL—Saxony, fleece, lb.	70— 85	65— 75	70— 75	
Merino, lb.	50— 65	55— 65	62— 68	
1-4 and common, lb.	35— 40	40— 45	42— 47	
Pulled, lb.	45— 50	30— 60	20— 56	
Sheep,	....	4 00—7 00		
Cows and Calves,	....	....		

FROM THE STEAM-PRESS OF PACKARD & VAN BENTHUSEN.

CULTIVATOR--EXTRA.

MARCH, 1836.

NEW-YORK STATE AGRICULTURE SOCIETY.

At a meeting of the State Agricultural Society, held at the Capitol in the city of Albany, February 11, 1836--

JESSE BUEL, president.

The report of JOHN P. BEEKMAN, corresponding secretary, was read and accepted.

The report of CALEB N. BEMENT, treasurer, was read and accepted.

On motion of Mr. Allen,

Resolved, That a committee of seven be appointed by the president, to nominate suitable persons as officers of the society for the ensuing year.

Whereupon the president appointed the following persons to be said committee:—Messrs. Allen, Beekman, Duane, J. J. Viele, Cunningham, Baldwin and Ellsworth.

The annual address to the society, was then delivered by the Hon. JOHN B. YATES.

The nominating committee having reported, the society proceeded to the election of officers for the ensuing year, whereupon the following persons were duly elected:

ARCHIBALD M'INTYRE, President,
ANTHONY VAN BERGEN, first Vice-President,
ZEBA A. LELAND, second do.
JOHN P. BEEKMAN, third do.
PHILIP VIELE, fourth do.
JESSE BUEL, Corresponding Secretary,
JOHN KEYES PAIGE, Recording Secretary,
CALEB N. BEMENT, Treasurer,

Executive Committee.

ALEXANDER WALSH,
JOHN TOWNSEND,
ERASTUS CORNING,
SAMUEL CHEEVER,
OBADIAH R. VAN BENTHUYSEN.
JOAB CENTER,
JOHN B. DUANE,
JOHN B. YATES,
JOHN H. STEEL,

The proceedings and memorial of the New-York State Agricultural convention having been read to the society—thereupon,

On motion of Dr. Beekman,

Resolved, That this society approve the proceedings of the late agricultural convention assembled in this city, and respectfully pray the legislature to grant their petition for an agricultural school.

On motion of Mr. Duane,

Resolved, That the thanks of this society be tendered to the Hon. JOHN B. YATES, for the able and eloquent address delivered by him, before the society, and that a copy be requested for publication.

On motion of Mr. Leland,

Resolved, That the thanks of this society be tendered to the late president thereof, for the able and satisfactory manner in which he has presided over the same, and for the benefit he has rendered the cause of agriculture in general.

The society then adjourned.

ADDRESS OF JOHN B. YATES, Esq.

In presenting our annual address, an opinion may be entertained by some, that it should be confined to subjects connected with the immediate objects avowed on the formation of the society: improvement in agriculture only.

This opinion, although evidently too limited for the proper purposes of such an association, and tending to restrain that extensive usefulness which its consultations and active operations might otherwise produce, has notwithstanding, been supported by many respectable citizens. There appears among us a morbid apprehension of political combinations. Dare we acknowledge, that we dread any more extended presentation of views to the farmer, than such as are properly connected with the mere mechanical organization of his farm, and the construction of the implements adapted to its most profitable cultivation? Such an avowal would not readily be made, by any man professing to advocate our political institutions; and yet the opinion can have no other foundation.

The Pacha of Egypt observes the immense use of cotton, in the costume and other comforts of all the nations of the world. His country is well adapted to the growth of the raw material. He regards only the acquisition of wealth and power. His sagacity enables him distinctly to perceive the means of acquiring both. His subjects (from causes which the limits of this address will not permit me to examine, although the examination would be connected with its object,) submit with implicit obedience to his mandate. He drives them with the cattle of his fields to the cotton plantation. The animal machine is strained to its strength. Improvements in the application of its power, from other countries, are introduced for the hope of the greatest pecuniary advantage, and the maximum product that can thus be procured, passes into the hands of the *merchant prince*, to be *vended* for the support of an army of other machines necessary to sustain his conquests and despotic misrule.

Our efforts in the performance of duty, as citizens and philanthropists, are too often like his, (although resulting from other evident motives, but without great caution tending to the same end,) absorbingly directed to increase the wealth and resources of the country, as the most important object patriotism can promote. But I would ask the enlightened patriot, are there not others of far greater importance, that should engage primary attention, to accomplish and secure which, the wealth and resources of the country are alone valuable?

In the organization of society, various engagements and permanent pursuits divide the people into almost as many distinct classes as there are distinct regular occupations. This is a necessary consequence of the mutual dependence of man, in all the relations of life, through the whole extent of ascending and improving civilization, until he arrives at the nearest approach to perfection in the power of human wisdom: the sincere devotion of a creature, with heartfelt acknowledgment of dependence on the great First Cause—courteousness, kindness, charity in judgment towards his fellow man—the cultivation of the physical energy of the human frame, and all the intellectual qualities of the mind, united with a desire and effort to diffuse the participation of these enjoyments to as great an extent as the best organization of society will permit.

Another consequence however, growing in part out of the present formation of political communities, and particularly exhibited in countries where the least surrender of personal liberty for the safety of government has been required, is, that the pursuit enabling its followers to assume the most elevated position, will always be deemed most desirable. If the path to that position be open for all, and the temple of Fame, with its fascinating allurements in full view, although seen only in the distant vista, the votaries, with all the variety of human passions, urging their way to its idol altar, will always be incalculably great. Ignorant and intolerant fanaticism, with its dagger, its torch and its rack, hallucinating enthusiasm, wily hypocrisy, boastful and egotic arrogance, resting for aid and support upon every mean that can be enlisted under their respective banners, are all pressing each other on the way, hateful and hating in their contests.

From the gloomy outlines of such a picture there is some relief. Genuine philanthropy, seeking not its own exclusively, but universal good, moves kindly watchful, modest, and though retiring, active in her sphere; slow, yet firm and steadfast, she collects around her an interesting group: its members mingle in all occupations, receiving almost universal respect; the uniform tendency of their conduct, and its evident effect upon the preservation of order in society, by soothing and quieting the discordant elements of which it is composed, frequently commands an involuntary reverential deference. The happy tendency of their efforts induces kindness, and in proportion as they avoid conflicting with the personal interest of others is their influence extended and beneficially exercised. The high estimation however, in which the remnant of moral sense, retaining its hold upon the conscience, constrains even the bad to regard him whose life appears devoted to acts of beneficence and philanthropy, throws among that class many whose motives are impure, who seek the association and the character as a mean, only, to accomplish other ends. Thus I have endeavored to present a brief outline of the moral constitution of every community, under every government, in every form of human association.

The question is then presented to all of us, who have properly considered our duty, and are truly desirous to promote both our own and the happiness of others, what course of conduct will most extensively diffuse and equalize the benefits of society, and promises most permanently to preserve and perpetuate its order?

As a society we should see how the object of *our* particular attention is connected with the pursuits and enjoyments of man: what species of improvement will best promote his happiness, and how far we are associated in interest with other engagements, with the sciences, and with every species of intellectual effort.

The last century has presented an entire new era in the civil history of the human race. The important, extensive and varied improvement in the sciences, directly applicable to the physical employment of mankind, has wrought a great change in the structure of society, and the relative position of its numerous pursuits. To take up any one of these and attempt to present its progress, within even that limit, cannot now be done. Nothing more will be attempted than a mere notice of the fact; a brief reference to the causes, and the expression of a desire that more general attention may be roused, to aid in the accomplishment of the particular object we have in view, which we think deeply interwoven with the safety and prosperity of all classes, peculiarly adapted to the present time and highly important to our country and government—the thorough education of the agriculturists and the laborer of every description.

I feel myself required previous to such notice to trespass on your time, with a brief and very superficial review of historical events connected with the general diffusion of instruction in society, and the division of its classes. Although in some respects there must always be a resemblance, yet prominent causes, some of which will be named, have so materially affected the civilized world as to change in a great degree the duties and obligations of civil life.

The relations of private life—the obligations of love to our neighbor, of administering to his physical wants, of comfort under affliction, and all the particular calls of charitable feeling, are never varying duties, and alike in all ages and countries. The public relations however, are entirely different: the performance of a duty in one country, would justly be deemed a crime in another.

The wonted order and government of society should never be suddenly or unnecessarily changed: every great convulsion impairs its moral aspect—real improvement is gradual, the result of due preparation. It is indeed admitted and true, that many beneficial changes have required violent and sometimes sanguinary efforts; but these have terminated beneficially, only when founded on the requisite preparation, and the necessity for violence has arisen solely from the power of the combination interested in preventing such change.

In the revolutions, and the attempts at revolution, within the last sixty years, an instructive and elucidating comparison might readily be given.

The result of the American revolution, compared with the attempts in most other countries, unprepared for them, and conducted with merciless ferocity and carnage, ending in nothing but desolation and a change of masters, would on examination prove my declaration.

It is not the duty or province of philanthropy and patriotism to desire a violent and sanguinary change in any government, without a popular intellectual preparation for it.

Happily for us we can deliberately take any required retrospect of events, and act upon such instruction, as their history presents, without apprehension of injury, either to ourselves personally, or the public institutions of our country.

It is readily acknowledged, that in the imperfection of human character, the perversion of the principles of our institutions, and the prostration of the rights of individuals, by lawless and unregulated violence, has sometimes occurred even here: this affords evidence that although much has been done for the enjoyment of equal rights and full protection, more is still required.

The necessity of preserving the order of the community by fixed rules, must be understood and acknowledged by all. The danger of correcting evils by bursts of public feeling, breaking out into personal violence, must be made apparent.

These unhappy events we will have occasion to notice hereafter, and exhibit our views of the appropriate and only remedy—unless indeed, the incorrigible depravity of man, renders this tremendous evil utterly remediless. If such an opinion be deemed probable, or even plausible, and we dare to cast our view to the future, a dark and boding cloud must be presented to the gloomy imagination, in which the disruption of society will be at first indistinctly seen, after which it will appear lighted by the lurid and blasting blaze of maddened and maddening human passions: the scene closing with the exhibition of anarchy, carnage and desolation, terminating in the darkness of military despotism. If we rest upon historic comparison only, and past experience affords the sole foundation for hope, then indeed we are lost. I think however, we may shew a course of measures, imperatively required of us by every consideration of duty, which alone can revive and sustain a hope of protection from this impending danger.

But to proceed with the promised brief historical survey, which may indeed sound to the fastidious and critical hearer, too familiar for any required instruction in the way we propose to use it; and to the mere political economist, who regards nothing important, beyond the investigation of how the animal may be most conveniently supported, it may appear wholly superfluous: yet I deem it necessary, as the connecting link by which the course of argument can be better understood. If in the end the most distant probability shall be presented that the conclusion at which I arrive may be correct; we then confidently throw ourselves upon the whole community—the farmer, the mechanic, the merchant, the upright lawyer, the benevolent physician, the devout christian minister, the philanthropist of every denomination, we invite, we urge to investigate and decide whether the cause is worthy of their aid.

Since the commencement of the Christian era, the entire constitution of society has been changed; a gradual and thorough approximation of its various classes, has been produced within the last two centuries never before known in large communities; great and valuable improvements have placed the pursuits of life in new relations; they are not now what they were.

The fundamental principles of the Christian religion, resting for their support upon the strictest morality, as well as creed, are also democratic in their tendency; while the private rights of individuals, according to the established constitutions of the society in which those rights are held, have been guarded by the most plenary sanctions; and the kingdom of the *Son of Man* is declared not to be of this world, the disciples are cautioned against any thought of precedence. In various other parts of scripture, equality of right, with proper submission to the powers that be, are inculcated by the divine teacher as moral precepts. The limited means then known and possessed for the diffusion of information, probably prevented the full effect of these principles on the organization of human society. Confined to oral instruction, and a restricted use of written precepts, with a community, the common mass of which must necessarily have been ignorant of letters, it cannot be surprising that in the promulgation of Christianity, such portions only as were in accordance with the political views of rulers, should be most sedulously inculcated; its liberal principles stigmatized as errors, and the arm of civil power called in, to restrain the propagation of sentiments, feared as dangerous to the existing authority.

The mythology of paganism, yielding to the greater power of more correct principles upon the mind, had yet sufficient influence, aided by the interest, wealth and power of the rulers, to impair the purity of the new religion, to bewilder and mislead its most ardent votaries in the mazes of the machinery introduced by its corrupted teachers. The deleterious habits of a profligate age, left their impression upon the professed followers of the cross. The corruption of all classes, and the enfeebling effect of their degeneracy, rendered them an easy prey to the hordes by which Europe was overrun, and the whole of its former enervated inhabitants were swept off, or changed in character. Nothing of the ancient world withstood this irruption; but the principles of Christianity, preserved, sustained and fostered by the devotion of its humble professors, and although impaired by its connection with government, and obscured by its inappropriate dress, yet remained strongly recommended by the purity of its doctrine.

The whole order of society changed—the iron age of feudal violence and misrule substituted for the greater misrule of enervating corruption and philosophic sensuality: a long night of literary darkness succeeded. Philanthropists struggling to revive learning and science, drew largely from the remnant of ancient treasures yet preserved. The efforts were great, and success slow, until the discovery of the art of printing. Then indeed a new era in the history of mankind commenced; the germ of all the improvements of the present and future ages, was then planted for infinite expansion. The few centuries since elapsed, have witnessed and present at this day, a more perfect revolution in the situation of the human race, both in science and the political equalization of man, than was produced from the creation to that time. The art of printing is universally acknowledged as the prominent cause of this change.

The diffusion of information, brought into active use a greater variety of human intellect; and rapid improvement in all branches of science was the consequence: yet this improvement, guarded by the vigilance of power and clerical apprehension, was restricted by almost universal consent, to particular and privileged classes only. Thus the entire course of education has been so regulated as to require an abandonment of all active physical employment, except for recreation and exercise, founded on what has been erroneously deemed an axiom, "that scientific pursuits and useful labor are incompatible." The weapons of satire and ridicule have been unsparingly directed against all attempts to break in upon the exclusiveness of the circle to which these advantages were confined. In the order of nature, the intellectual gifts of providence have been diffused without regard to artificial distinctions, and frequent lashings from the pungent pens of highly gifted plebeians, ultimately changed the relation of parties. The liberal and benevolent wealthy became the patrons of genius; ambition followed and used the talent it respected and feared, for its own purposes. Although this venal relation was unfavorable to the free use of mental powers, yet intellectual proximity and more frequently acknowledged superiority broke down the barrier, and diminished the distance between the lord and serf, the master and the slave. Reserved however for the few who exhibited early indications of superior minds, and who were happily so placed as to attract favorable attention, the rudiments of learning were yet, as of right, confined to men of leisure, or those who devoted their whole time to them.

If the flashings of genius, or the steady blaze of intellectual light were so vivid as to be discerned along the path of the peasant, by any liberal patron of learning, the former manual occupation must be abandoned, as too grovelling for the literary prodigy. Fostered by the hope of distinction and natural feeling, this opinion received additional support and strength from the individuals favored by it. All the schools of the civilized world have been founded on the supposition, that the boundaries of instruction in learning and science, must be governed by the intended occupation, unless a decided character of mind, or fixed predilection should require a change. That active physical employment, or laborious muscular exertion, might by improving bodily health, also invigorate mental energy, has until lately been considered a paradox, suited only to the speculative theorist. Since the indefinite multiplication of printing presses, the cheapness, variety, and consequent unlimited diffusion of books and publications of all sorts, in every department of learning, many of which have been produced by men engaged in laborious occupations, the apparent paradox has been proved. The playfulness of the mind may be chastened by the dull pursuits of active life; works of fancy may not flow so readily from the shop of the mechanic, or the home of the ploughman, but all useful reflection would be aided by active engagement, and mankind more benefited by observations, the result of experience, connected with literary information and a practical knowledge of the world. In every country the agricultural class, the condition and employment of which *we* have associated to improve, sustains the very foundation, and is interwoven with all the interests of society; yet owing to causes peculiar to itself and difficult to overcome, its improvement has been retarded more than any other, and its individual and even aggregate influence in society and government less than it should be, if properly prepared to exert such influence. It employs a great majority of the population, and yet in the prosecution of measures requiring combination of individuals, it is incomparably weak.

Agricultural employment disperses its followers over a large surface; meetings for consultation, and mutual improvement by familiar interchange of thought, are inconvenient, and if not guarded by the strictest rules of order, often tend to unhappy results in the habits of a community. It is therefore difficult to produce that combination of effort in favor of the requisite measures for its advancement and success. Yet all obstacles should be overcome. The improvement of husbandry is important to the resources of a country: all nations possessing regular organized governments have highly regarded and endeavored to sustain it: most of them with misdirected efforts, have thrown their whole attention to the product, without any thought of the further improvement or benefit of the agent, except to protect him as a part of the machinery suited to promote national wealth and pride. But *we* should think it more necessary that the mind and character of the husbandman be elevated to a standard commensurate to his station in society. The farmer and mechanic themselves have too long deemed and advocated an education limited by the immediate necessities of the occupation, as alone necessary; and with regard to the farmer particularly, that opinion has been restricted far within the wants of his engagement. Instruction in all the natural sciences is important to the agriculturist, and as a citizen it should be limited only by his capacity to receive it.

I have before spoken of the jealousy with which some minds regard the introduction of political topics in any assemblies, except those convened for such specific purpose. That the good order and harmony of a society may be promoted by their exclusion, I readily admit: but I aver that a full and free interchange of opinion at all times, a freedom of thought and expression, and moderately conflicting discussion, are highly beneficial. There can be no true interest of the community opposed to them, but much useful information may be thus elicited. In the intercourse between the farmers, no topic on which conversation can be held with moderation should be avoided; all are connected with either our comfort or success in some way: more especially however, should we regard any attempt to restrain the progress of information to particular classes, as treasonable to the very existence of republican institutions. All opportunities should be seized, all means used to diffuse instruction in every branch of science, and in every department of learning: we cannot hope for continuance unless this be done.

The resort to history and the experience of past ages, for the purpose of elucidation and comparison, is, as I have endeavored to show, difficult and fallacious. The state of the whole world is materially variant from that of any former time preceding the last century. With the progress and change of society within that period we are familiar: even the last fifty years have presented almost an entire revolution in the industry of society, and the relative influence of its various classes and pursuits. The progress of science with the diffusion of education has extended occupation into new channels. Articles of luxury and convenience, not known to our ancestors, have come into familiar use, and are now necessaries of life from habit. The easy intercourse produced by recent discoveries and improvements in mechanics, has approximated the most distant nations: even the unvarying eastern nations of the old world, whence we have the first record of existence and civilization, and which exhibit to this day a wonderful similarity to the recorded accounts of the manners and habits of the inhabitants in the most ancient times, are now threatened with innovation, and preparing to bend to the influence of the times and the spirit of change. Alterations in the general relative conditions of the human race have been produced every where: we must look forward to further advancement. There will probably be no retrograde, unless as in the first ages of the Christian era and previous to that time, the progress of venality and luxury, should have prostrated both the moral and physical energy of civilized man, and the general disruption of society follow in the train of destroying hordes. Such effects cannot however now be produced in the same way. The "officina gentium," the northern hive, whence the destroyers of the ancient nations broke, has been invaded, and will throughout its whole extent submit to the universal spirit of improvement.

The hall of science has been reared, and every effort directed, even with despotic energy, in the region of the Goth and the Vandal, to inprove the intellectual power of man. The sole business of life is no longer the cultivation of fearlessness of death, in prosecuting the most highly esteemed occupation of that age; spreading ruin and desolation through the land. The descendant of the ancient Scandinavian warrior is not now what his ancestor was. The votary of Odin and Thor, revelling in blood, exultingly fighting and dying in confident expectation of the joys of Valhalla, is gone, and his place is supplied by his descendant, cultivating with equal ardor all the arts of peace. With all the disadvantages founded on principles which we have always thought, and been taught to think, opposed to the diffusion of information, the enlightened policy of the Prussian government, has introduced into that country, a general system of instruction, calculated to improve every class in that community. The children of all, even the poorest peasant in the kingdom, receive more full and thorough instruction than is given in most of the higher schools in other countries, and more particularly in our own country. The government of Bavaria is now following its example, forming and establishing similar institutions. Hitherto we have regarded kings and nobles, as deeply interested in restraining the diffusion of intellectual instruction among their subjects. Formerly on the continent of Europe, part of the kingdom of Great Britian, the small district of country comprising the united provinces of the Netherlands, a few of the cantons of Switzerland, and some cities enjoying immunities and priveleges by sufferance from their more powerful neighbors, in consequence of their commercial enterprize and usefulness, have been regarded as the only people desirous to cultivate and diffuse general literary instruction. The prevalence and support of this feeling has always been attributed to the enjoyment of more liberal political institutions, and among the inhabitants of the Alps, also, to the comparative security of their mountain residence, and their equality in wealth and station.

I might here profitably digress, and trace this beneficial effect to a further probable cause; for our purpose such examination is not now necessary, nor have we time to trace cause and effect. The philosophy of history cannot now be examined. It is sufficient to say, that the dawn of another day is breaking upon *all* the nations; its light has penetrated into the cabinets of princes; it has warmed the breast of the philanthropist, and is burning with its concentrated rays the constricting prejudices of ancient times. The voice of the people is now regarded every where. Public opinion in some shape governs all the world; even the despot, though supported by armed legions, cannot wholly disregard it. He perceives the importance of imparting information and wisdom to an influence no longer to be suppressed, and judiciously uses his power to instruct it. If this necessity is seen and acknowledged even there, how much more requisite is it for us to extend and enlarge our efforts. The institutions of *our* country, and their preservation rest upon this foundation only. The fundamental principle of our government is equality of political rights. An equal participation in the rights and priveleges of government; an equal liability to the penal sanctions of society for violating its order; and an equal voice in adopting rules required for the preservation of that order, and the selection of agents to enforce them, are considered necessary accompaniments of American freedom. These have been extended by the constitutions of most of the states, to all the male citizens who shall have arrived at the age fitting them for the exercise of those rights, and who are not under the acknowledged and legal government of an other. We have however, unhappily adopted, and permitted ourselves to be fettered by the maxims and thoughts of an age possessing no advantage equal to ours for the introduction of diffusive plans of instruction. In our academies and colleges we have copied the old European system. The result is such as might have been anticipated. No permanent distinctions in society existing here, all classes mingling with perfect equality, except such as the adventitious circumstances of wealth may produce, in a country where the means of living may be easily procured, in which what are termed professional pursuits—that is, the study and practice of law and physic, and the clerical profession, are almost the only engagements deemed compatible with the first standing in society, it is not at all surprising that preparation for them should be desirable to all young men.

The first of these professions more particularly requiring a knowledge of the constitution and laws of the country, and an intimate acquaintance with almost all the machinery of its government; also a sedulous attention to the principles of its commercial and social relations being necessary, to an advantageous and successful pursuit of that profession; the prominent men in it have been generally better qualified to fill the public stations of life than others; and from the nature and publicity of their engagements, also attract more attention. The consequence has been, that the young have not been taught properly to estimate the useful pursuits of life, but rather considered the necessity of confinement to them as a misfortune; that the profession of the law has been viewed as more particularly fitting for engagement in public duties and the gratification of ambition; that the other professions have been followed with some anxiety, because they have been held in an equally respectable estimation as private pursuits; that in the business and associations of life, the commercial class has ranked next, or equally with the profession, and the laboring classes of all descriptions have been last.

I do not wish to draw invidious distinctions, but to present a scale of gradation required by truth, for a more easy perception of the probable consequences of such a state of society if not corrected. The democratic institutions of the country, and their preservation require every judicious effort to destroy a preference of pursuit arising from such causes. As a means of doing this I do not advocate measures that shall impair the high regard in which these professions are now held; but am desirous that we shall adopt a course of instruction, which may tend to raise the other pursuits to a higher standard of moral and intellectual improvement, thus forming a general state of society, in which all will be better fitted to exercise the requisite judgment in the performance of all the duties of citizens of a democratic representative republic.

Unless this can be done, we may predict a rapid progress to the complete overthrow of our democratic institutions, in the ratio of increase of an ignorant and tumultuous population, as certainly as that effect must follow cause. I advert with painful sensations to recent events, as abundant proof already furnished in our country of the truth of this assertion, and sufficient ground for serious apprehension. If the moral condition of any community be such, that the laws imposing penal sanctions upon the commission of particular offences cannot be enforced, and from whatsoever cause it may arise, still the fact must be acknowledged, that the influence of the perpetrators of crimes, or the prevailing public opinions and feelings, will shield them from punishments; one of two results must follow: either that the laws were unwisely enacted, or the public moral sense is entirely degraded. In the cases to which I have in general terms alluded, the latter was in the aggregate true, at least in its moral aspect, and while I am free to acknowledge that a state of things may exist, in which a violent and sanguinary act may be palliated, by many peculiar circumstances, yet the necessity for repeated successive acts of so lamentable a description, gives the evidence of a state of society in some parts of our country, that I could not heretofore believe, existed any where, within the boundary of the United States. But it is true, portions of our country have been agitated by convulsive and irregular efforts to exterminate the destroyers of public morals, charged with having formed associations for indulgence in the most gross sensuality and profligacy, and seducing the young and unwary, so formidable in their influence as to bid open defiance to ordinary legal restraints, and so extensive in their ruinous effects, as to threaten the most alarming consequences. This being the acknowledged fact, a moments attention to the cause in connection with our subject may be profitable. The questions occur: What was the state of this society? How was it originally formed? What were its pursuits? What was and is now the condition of its laboring population? In what estimation is industry, and attention to useful employment held? And what provision exists in it for the diffusion of education? These are important inquiries, but without attempting to occupy your attention or exhausting my strength by a particular examination and answer to each, it will be sufficient to say: The first is answered by the outrageous violation of its order, and the necessity for such a tremendous remedy. The second by the known fertility of the soil, and the enterprize of the first settlers. The third is more difficult, they were and probably are now as irregular and reckless as their morals. The answers to the last three questions comprize the whole of their difficulties; they embrace the origin of all their troubles, and it is to be feared that no safe and permanent remedy can ever be found while the cause remains. Labor is disgraceful, the slave and the menial only perform it. The establishment and progress of diffusive, or even restricted education, has hitherto received little attention, and no hope can be entertained that the laborers will ever be permitted to participate in it. But I must thus pass this local reference on the present occasion, and return to our own region, where cause and effect can be more distinctly seen, and I think hope of success more strongly indulged by encouraging exertion and fostering perseverance. What is now our state? Public opinion guards with close assiduity against every effort to produce permanent family distinction; the very ground work and strength of every oligarchy—on this alone can their superstructure rest. When this foundation is removed, permanent political distinctions must vanish. Our policy has prostrated the fabric and razed the foundation. The laws of primogeniture and entail having been abolished, the accumulations of enterprize and the gatherings and hoardings of avarice, will be dissipated by prodigality, unlimited division among descendants and connections, or generously expended in acts of beneficence.

The pride of acquiring and perpetuating distinction to those most nearly allied, is so implanted in man and associated with his strongest personal feelings, that it always will exist; and constituted as we are, is perhaps necessary to the well being of society, if not to its very existence. It is important however that the most innocent and useful manner of doing it should be strongly presented and inculcated. The hope of effecting it by transferring wealth and with it power, is impaired at least, by what we have deemed the true policy of government. Every requisite measure has been adopted to sap the foundation by which the distinct orders of society might be permanently sustained. The channels for enterprize are still open. The means to accumulate wealth have been rather increased than diminished by the political change; and improvements in the facility of intercourse throughout the world, afford additional inducements to adopt those means. Unless intellectual improvement and moral energy can be imparted to the more stable population of the country, the result appears so inevitable, as to be truly alarming.

The desire to accumulate wealth still existing, but the anxiety to retain and perpetuate it decreased by the destruction of all hope of success, it follows, that in most instances, the wealth accumulated will be expended for the immediate gratification of its possessor, without much thought as to the ultimate tendency of such expenditure. Is it unreasonable to believe, indeed have we not demonstrative evidence of its truth, that a competition in extravagant display, and with such prodigality, its invariable and more deleterious concomitants, venality and profligacy, will become generally prevalent? The only hope of checking in any degree the injurious effect of such a state of things, is presented by adopting an enlarged plan of diffusive instruction. The effect of such diffusion will inevitably be to enlarge the sphere of competition in all the operations of life; to diminish the relative importance of public station, and extend the ability to judge of the usefulness and integrity of public agents.

The influence of mere political combinations will be less felt. Now indeed they are viewed, by many upright politicians, as the proper and useful means to accomplish good ends; but in the extreme of party discipline, honest individual opinion is too frequently restrained to an injurious extent. Render as far as possible each person competent to examine and judge; and the influence of such combinations would be under a salutary restraint, and never become dangerous, or even deleterious.

The equalization of intelligence as nearly as the distinction in natural endowments will allow, must also restrain the evil effect of profligate example by the wealthy, impair their power of corruption, and stamp the perpetrators of what would otherwise be deemed venial offences, with the general contempt they merit. The benevolent may find ample opportunity to employ their means usefully and gratefully, without being required, in the indulgence of the kindliest and most honorable feelings, so to act, as to leave their minds in doubt whether the aid they may have been induced to give, shall not prove more injurious than beneficial.

A brief reference to two more branches of this important subject will close this address. They arise from the present division of labor in mechanics, the manner of its control and government, the use of machinery, the dependence of the population thus employed, the species of combination to which it is liable, and the danger to the peace of community from it. It is not indeed possible, in this way, to enter into a full examination of the evils, and guards required to afford a good hope of protection from those evils. In order to do this instructively, a labor of far greater magnitude is necessary. But your attention should be called to it. A population, collected in manufacturing establishments of all sorts, is increasing and spreading through your land, for the education, restraint and protection of which, very little if any provision has yet been efficiently made.

It should not be thus neglected. The longer it is permitted to remain without due attention, the greater will be the difficulty of action upon it. So much has been named for future apprehension among us, that I dare not portray the lineaments and appalling features of this danger; but content myself with the suggestion, that protection from extreme foreign competition is *here* required, for far other and more cogent reasons than those founded on pecuniary advantages to the employers and employed; or even the great, the commanding and prostrating interests of foreign commerce.

If the manufacturer in the application of his industry, is pressed to his utmost strength in order to sustain himself against both the animate and inanimate machinery from abroad, throwing the product of its labor among us unrestrained, by any thing save the power of competition, how can he be given time, for due instruction and information in the duties of a citizen of a republic? The train of thought immediately connected with this consideration will not now be pursued, but it has been named to show, that protection of domestic industry is congenial and necessary to the safety of our government; that it is not, as has been falsely charged, a mere building up of one branch of industry at the expense of another, but that the correctness, (nay I will not, and cannot withhold the assertion,) the imperative necessity of the policy arises more from the nature of our institutions than any pecuniary considerations whatever.

The other subject requiring also immediate attention to the diffusion of instruction, arises from the great variety of new species, and new divisions of property created by factitious means. The possessors of which exercise and will continue to possess and exert an immense influence in all the operations of society.

The vast amount of corporate property engaged in the employment of industry, is already such, as to attract an anxious attention in view of its political consequences. It is daily, and perhaps may be properly increasing. Throughout our whole land the influence of this property is felt, and we are not yet prepared to say, or even form a probable conjecture what may be the consequence.

The discussion of this policy is not now designed. By the present excited spirit of enterprize, in addition to its former influence in commercial and pecuniary matters, it threatens to assume an entire control over a large branch of the industry of the country engaged in transportation and forwarding.

We must look to our citizens employed by these bodies. Their welfare and the welfare of the whole country requires this attention.

The species of property which has of late been so abundantly created, increased and extended, while it has been and is yet productive of great good to the pecuniary interest and resources of the country, is also fraught with many dangers, against which the public should be properly guarded.

I must be pardoned for this closing notice. I am not among those who think the prosperity of the country consists either exclusively, or even mainly in the increase of its wealth, the magnitude of its cities, the splendor of its edifices, the sensual refinement and luxury of its inhabitants, the power of its fleets and armies, or even the extent of its commerce; but rests wholly on public virtue and intelligence. Nor can that virtue and intelligence be best sustained by a government with permanent and hereditary distinctions, and the encouragement of prodigal expenditure by the wealthy. Neither is the miserable and envious spirit of levelling agrarianism, that political and immoral profligacy which disregards the private rights of individuals, in pursuit of what may be considered a public good.

suited to promote that virtue and intelligence. I close with a single remark, addressed to every member of this society: Do you wish to raise the importance of your farmer, mechanic and laborer? Do you wish to destroy personal influence arising from wealth and not character and measures? Do you wish quietly, without injustice and without violence; to equalize property as conducive to the greater safety of the republic? And in fine, do you wish to foster any hope to preserve your republic? Educate thoroughly your whole community.

AGRICULTURAL STATE CONVENTION.

At a meeting of delegates and others, from different parts of the state, in agricultural convention assembled, in the assembly chamber in the city of Albany, on Monday, February 8th, at 3 o'clock P. M.

On motion of Mr. Dickinson, of Broome, the Hon. Judge Buel of Albany was temporarily called to the chair, and on motion of Mr. Leland of Steuben, D. L. Dickinson of Broome, and J. J. Viele of Rensselaer, were chosen secretaries.

The chairman then rose and addressed the convention as follows:

Gentlemen—Land and labor are the principal sources of public and private wealth. The more fertility we can impart to the one, and the more intelligence we can infuse into the other, the greater will be the returns they make, and the greater our means of happiness; for it is wealth, rightly employed, that enables us to multiply not only our own, but the comforts and happiness of those around us. Yet it is not a few very rich men, or very wise men, be the aggregate of wealth and talent ever so great, that give prosperity and greatness to a state. It is the general diffusion, among a whole people, among the rank and file of society, of property and knowledge, and the industry, enterprise and independence which they beget, that renders a state truly respectable and great. If this convention, therefore, can do aught to render labor more profitable and more honorable, and our lands more productive, it will effect a substantial good to society.

I venture to lay down this broad proposition, that the productions of our agricultural labor may be doubled in ten years, and trebled in twenty. In proof of this, I appeal, in the first instance, to facts which have fallen under the observation of all: to the contrast, in products and profits, which are seen to exist, between districts and farms, of equal natural fertility, and often contiguous to each other, which are under good and bad management, and the constantly increasing profits of husbandry, where the spirit of improvement has been fully awakened. We find many individuals who pay from seventy to one hundred dollars an acre for farms, getting not only the interest of their purchase money, but realizing large profits, from their agricultural labors; while we see others, equally well circumstanced, hardly getting enough to meet the contingent expenses of their families. Within the last thirty years, in many districts, particularly in Orange, Dutchess, Columbia, &c., where the natural fertility of the soil had been exhausted by the old system of depletion, and where improvment gained an early footing, the price of lands has increased three and four fold, and the products of agricultural industry in a proportionate ratio.—There are other districts again, that have remained stationary in their practice, while the soil has been constantly deteriorating, because this practice has been primitive, calculated to exhaust, but not to restore fertility. The measure has been constantly sent for meal, without the meal-chest having been replenished. This has most happened where nature had been most bountiful in imparting natural fertility: man being in a measure compelled to exert his physical and mental energies most upon a poor soil. The benefits to the productive districts and farms, have been brought about by a more extended knowledge, in the cultivator, of the principles upon which good husbandry is based, by the force of competition, and examples of individual excellence. The bad husbandry has diminished in products and profits, from the want of this knowledge, from the force of prejudice, the want of a spirit of competition, the want of system, and from culpable indolence, the natural result of the other causes. In what manufacturing or mechanic art, do we see the master prosper, who adheres to the modes and practices of his grand-father? The labor of fabrication has been abridged of one half of its toil in these, by the discoveries of science and the inventions of genius. Nor is much less the case in agriculture, where science and skill have beed pressed into its service. "Why," says a late writer, "this becomes another world to the man who opens his eyes. Science breathes life and light into it; it kindles with glory, happiness and praise; there is no one who cannot feel its inspirations if he will."

But even in our best cultivated districts, and on our best cultivated farms, the capacities of the soil to reward labor, are yet but partially developed. Art has not yet exhausted its energies upon them, and science, with gigantic strength, is coming to its aid.—The value of manures, the pabulum of vegetable life, and the source of vegetable growth and excellence, will be better appreciated, their quantity doubled, and their application directed with better economy. The importance of alternating crops, on all lands susceptible of this mode of culture, which makes the grain, grass and root crops mutually subservient to the wants of each other, will be better developed in principle, and better carried out in practice. The culture of roots, which pulverize and ameliorate the soil, fatten the farm-stock and fill the dung-yard—which has been the basis of improved husbandry in Britain, and promises the best results in this state, wherever it has gained a fair footing, will be greatly and profitably extended. The properties of lime, marl and gypsum will be better understood, and these mineral substances will be made to contribute more largely to the productiveness of the soil. Labor-saving implements will be multiplied, and our farm stock will be improved in quality, and increased in numbers. Whitney's Cotton Gin doubled the value of the cotton lands of the south, and its benefits have been estimated over one hundred millions of dollars; and I state with confidence, that a single implement, Green's Straw Cutter, is calculated to save half a ton of hay in the winter keep of a horse, ox or cow, fed upon hay. Estimating the number of horses and neat cattle at half our population, which is certainly within bounds, the saving in this machine, over that of feeding in the old slovenly way, would be at least 500,000 tons of hay in a year, which at the moderate estimate of $7 per ton, would amount to an annual saving of three millions and a half of dollars. If we estimate the labor to be saved by the general introduction of improved ploughs, harrows, cultivators, drill-barrows, horse-rakes, mowing machines, thrashing machines, &c., which not one farmer in twenty has yet availed himself of, and consider the benefits of the countless new inventions which the genius and enterprise of our countrymen are likely to produce, I cannot be mistaken in assuming, under a view of all these considerations, that every tolerable acre of land, near the borders of the Hudson, may be made to produce to the cultivator, the clear interest of two hundred dollars per annum. There are thousands of acres which already produce double this income.

To strengthen the force of this conclusion, I beg leave to call your attention ts the agricultural products of other countries.

Professor Low, one of the latest and best authorities for Scotch husbandry, bases his estimate of farm profits upon an annual rent to the landlord—(for Scotch, as well as English farmers, are almost invariably tenants to the nobility and gentry)—I say he bases his estimate of the farmer's profits upon an annual rent of £2, or about nine dollars per acre. He puts down the other burthens, as window and saddle horse duty, statute or highway labor, poor rates and insurance, at $141.87, for a farm of five hundred acres. Thus the Scotch farmer, upon his 500 acre farm, pays annually in rent and burthens $4,641. After deducting this amount from the products of the farm, as well as the expense of family, stock, implements, manure, labor, &c. the professor gives to the farmer, a nett income, from the products of his labor, of £399, 6s. 2d. ($1,785,) amounting to 16s. ($3.80) per acre. If we throw out of the account the burthens and rent, which are mere nominal with us, the nett income of the Scotch farmer, clear of every expense, would average seven dollars and seventy-five cents per acre, or upon his 500 acre farm, would amount to $3,875, instead of $1,785.

The cultivated lands of England and Wales are computed at 91,000,000 of acres, and the annual product of these lands is estimated by Arthur Young, at one hundred and forty-five millions of pounds sterling, equal to six hundred and forty millions of dollars. More recent estimates put the agricultural products of Great Britain, including Scotland, at two hundred and sixty millions of pounds. Upon the first estimate we have, as the average product per acre, about $19·36. To show the burthens of the British farmer, which are an enormous drawback upon the profits of his labor, we will only quote from Arthur Young, who made an agricultural survey of the country some forty years ago, the amount of these burdens in the county of Essex, a district sixty miles long by fifty broad. The tithes amounted to 4s. 9d. (94 cents) on the acre.— But I will give gross sums:

Rents,	£936,320
Tithes,	225,620
Poor rates,	500,000

Exceeding, in the aggregate, seven millions, three hundred thousand dollars, which the farmers of one county annually pay, to the landlords, the clergy and paupers! And yet, says our account, with all these burdens, their profits from the improved modes of cultivation, were greater in 1805, than when the expenses were much less. Let us imitate their industry and their skill, but may we long be exempt from their rents, rates and tithes.

Let us now examine the statistical data of New-York Agriculture. The cultivated lands in our state were estimated, in 1825, at 7,160,967 acres, and their aggregate value, at the average value of $25 per acre, at $179,124,175. The farm stock was estimated to swell this amount to two hundred and twenty millions. Let us suppose, what we believe will be making a pretty fair allowance, that the farmer upon 100 acres, which, with the necessary farm stock, we will put down at $3,000, produces twenty per cent upon this capital, or $600 a year. Deduct seven per cent from this sum, for interest upon the capital, or for rent, and he will have left, for his labor, and family, and other expenses, $390. Upon this estimate, it will be perceived, our lands do not yield one-third of the produce per acre, upon an average, that is produced upon the farm lands of England. And even the farming in England, we believe, is badly managed in many districts, and is less productive than either that of Scotland or Flanders. We certainly have the capacities, if we will call them into action, of successfully competing, in every branch of productive labor, with the population of the old world.

In recurring to the history of agriculture, we find, that a century ago, it excelled in the Netherlands, embracing Flanders, and in some districts of Italy, particularly in the valley of the Po. In the former of these countries, a judicious system of rotation, suited to soil and local circumstances, had been adopted; clover and roots had been introduced, and manures were sedulously husbanded and discreetly applied. In addition to these improvements, irrigation had been extensively adopted in the valley of the Po. Although these countries have, during the last century, progressed but comparatively little in agricultural improvement, they nevertheless retain a degree of preeminence, at this day, and furnish practical examples highly worthy of our imitation. So recently as 80 years ago, agriculture was in a most wretched condition, both in Great Britain and France. Most of the improvements in English husbandry have been made within the last seventy years; those of Scotland during the last fifty years, and those of France since the period of her revolution, or within the last thirty years. These improvements, which have contributed essentially to the prosperity and happiness of the human family, were brought about by the spirited exertions of a few distinguished individuals, such as Young, Sinclair, Davy, Chaptal, Bakewell, and others of minor note, though probably not less efficient; by the application of science to husbandry, and the co-operation of societies formed to promote its improvement. Among the leading features of the great practical agricultural improvement which has so recently taken place in Britain, Loudon places at the head—the introduction of a better system of rotation—the drill system of growing turnips, about 1765; the improvement of live stock, by Bakewell, about 1770; the use of lime in agriculture, and the system of convertible husbandry, which commenced about 1765; the improved plough, by Small, about 1790, and the thrashing machine, by Merkle, about 1795; the system of draining, or tapping springs, discovered by Anderson from principle, and by Elkinton, by accident, about 1765; the revival of the art of irrigation, by Boswell, in 1780; the field culture of the potatoe about 1750; the introduction of the Swedish turnip about 1790, of spring wheat about 1795, and of mangold wurzel at a still later period. The British Board of Agriculture, and the Highland Society of Scotland, have effected much towards improvement; and perhaps no country in the world has made greater strides, at any period, in bettering the condition of her husbandry, than Scotland has, during the last half century, under the fostering auspices of the last named society, and which is dispensing its labors of usefulness, with untiring patience and unabating energy.

Although it is difficult to compare the average crops of different countries with any degree of accuracy, I will nevertheless endeavor to do it from the imperfect data to which I have had access, so far as regards some of the staple products of the soil, premising at the same time, that the comparison affords but an imperfect view of the relative amount of farm profits, the disparity in the price of labor, and the general economy of farm management, not coming under notice.

Flanders is a flat, wet, and generalty sandy country, illy adapted to the wheat crop. Yet the average product of different districts, in this grain, according to Radcliff, varies from 20½ to 32 bushels the acre; mean average over twenty-six bushels per acre. Lowe gives the average product in Scotland, of wheat twenty-four, barley forty-two, and oats 48 bushels the acre. Loudon states the average product in Britain at 24, 28 and 32 bushels; mean average 26 bushels the acre. In 1790, Washington, in a letter to Arthur Young, computed the average crop in Pennsylvania, then one of our best wheat growing states, as follows:—wheat 15 bushels, rye 20, barley 25, oats 30, Indian corn 25, potatoes 75. Strickland, in a report made to the British Board of Agriculture, forty years ago, gave the average wheat crop of our state, at 12 bushels the acre, and of Dutchess, then as now, our best cultivated county, at 16 bushels. An intelligent correspondent of the Baltimore Farmer, who dates Philadelphia county, expresses his doubts whether the average produce in Pennsylvania, with the exception of the potatoe crop, is as great as it was half a century ago. I am inclined to believe, that in our state there has been a manifest improvement in that period; for although some districts have retrograded, others have advanced with a good deal of celerity. Well managed farms may be selected in the old river counties, where improvement has made the greatest advances, upon which the average crops have been more than doubled during the last few years; where wheat has yielded an average crop of 25 to 30 bushels an acre, corn 70 to 80, potatoes 300, and other crops in proportion, and where cultivated grasses and roots have still more added to the profits of the husbandman. The maximum produce of our grain crops may be stated, wheat 40 bushels, Indian corn 100, rye 35, oats and barley 60. In this estimate I leave out of view the fertile west, where nature has been profusely bountiful of her gifts, and where man seems to think the soil inexhaustible, and confine my remarks to the valley of the Hudson. These facts suffice to show, that while the condition of our husbandry is bad, it is susceptible of great improvement. What has been done in one district, or on one farm, may be done in others. And if we despair of the present generation, to make the desired improvements, let us take care at least to qualify our sons to become better managers than their fathers.

From the estimate I have made, of our agricultural products, it would seem that they amount to about 43 millions of dollars per annum. Now if this convention can be instrumental in adding merely ten per cent. to this amount, by inducing a more profitable mode of culture, they will be instrumental in adding annually four millions, three hundred thousand dollars to the capital of the state, independent of the enhanced value of the lands consequent upon their improved culture. But if they can succeed in awakening, in our legislators, and in our fellow citizens at large, a spirit of hearty co-operation in the work of improvement, the value of our agricultural products may be doubled. "Agriculture," says Sully, "may be regarded as the breasts from which the state derives its support and nourishment."

The inquiry next presents itself, how are these desired ends to be brought about? We can make good farmers as we make good officers for our navy and army: Teach the pupil the science as well as the art; instruct the head as well as the hands, and subject him to system and discipline. Give us an Agricultural West-Point to begin with, where may be concentrated and taught, all that is useful in theory and excellent in practice. "The education of the head and hands must always go together, or the health, strength and efficiency of the physical and mental powers of man can never be duly developed and maintained." Raise the standard of instruction in our common schools, the nurseries of statesmen as well as farmers. Infuse into the juvenile studies of your boys, the elementary principles of physical science; of those fixed laws of nature, which regulate and control matter, organic and inorganic, a knowledge of which is as beneficial to agriculture as it is to the art of war, or the healing art. Nay, there is probably not a business in life which can derive higher advantages from some of the sciences than agriculture. "It is not the arbitrary laws of man that improve the condition of man; for if they did, there has been enough of them, such as they are, to have made him perfect long ago. No—they will not do; we want the development of the laws of nature, in agriculture, manufactures, commerce, education, knowledge," to improve his condition, his habits and his morals. Excite emulation, encourage industry and recompense useful talent and enterprise by pecuniary and honorary rewards. With these teachings and these encouragements, the work of agricultural improvement will be accelerated; intellectual and moral improvement will receive a new impetus; science and art will consort as twin sisters, as legitimately designed; industry will become more honorable and be more honored; agriculture will assume a higher walk and character; and, to borrow Sully's simile, her paps will teem with nutriment, that shall fill every mouth with plenty, and every heart with joy. These things will lead to as benign a result here, as they have every where that they have been put in practice. They are as certain as cause and effect. "Does any one think," to quote a late writer, "that the world is travelled over, so that nothing remains to be explored? So far from it, the spirit of observation, when under the direction of science, labors with tenfold more success, and unfolds, even in the most beaten paths, a thousand resources of which man never dreamed. Look, for example, at the progress of horticulture. How many would have laughed at the idea of forming societies in reference to fruit trees, of which all the kinds were supposed to be familiarly known? And yet who does not know, that science is creating new varities, by following out the suggestions of nature? There can be no doubt, that science will be continually drawing out new resources from the vegetable world. Fruits that are now thought worthless, will be multiplied, like the crab apple, into rich and various kinds; roots, like the potatoe and mandioca, which were poisonous in their natural state, will be disarmed of their venom, and *tamed* for the service of mankind." "The fact is, that every man, woman and child, has a direct interest in these studies. Every man who owns a beast; every woman who lives where moths corrupt a garment; every child who rambles in his holidays, returns burning with poison from the hedge, has a direct and pressing interest in studies of this description."

On the old continent, it has ever been the fortune of the tillers of the soil, though constituting the mass of population, to occupy a subordinate and menial station in society. Though their privileges have been nominal, their burdens have been onerous; they have been literally the tax paying class. We profess to have thrown off the shackles from our yeomanry, and to hail them, particularly when we want their votes, as the enlightened sovereigns of the land; and sovereigns they truly are, and must continue to be, while our country remains free. But are they treated as such? Are they educated as such? We have established and endowed schools for the special instruction of the minor classes—but have we established any for the special benefit of the major class—the working class—the farmer and mechanic? We spend millions to protect our commerce; and we pay other millions in the form of custom-house duties—for it is the consumer who ultimately pays—upon the foreign commodities we consume, to encourage and sustain our manufacturing establishments. This is as it should be. But what direct aid do we give to our agriculture, the business that freights our commerce, and feeds our manufacturers? We have no discriminating duty which protects this branch of our labor, nor do we ask for any.—But we do ask for a more equal participation in the blessings of public education, and for legislative patronage, to enable us to develope the natural resources of our soil.

There is another point, I think, in which justice is withheld from the agriculturist—I mean in the imposition of our taxes. The balance of our mercantile and professional, and I believe manufacturing capital, consists in personal estate. The law allows so much of this to be exempt from assessment and tax as is equal to their debts, which are too often enough to cover their personal estate.—The property of the farmer consists principally of his farm—his personal effects being comparatively trifling, or of that description which the law exempts; and though he owes to the extent of his whole farm, the assessor is not allowed to abate a cent of its value, in consequence, upon the tax roll. The inequality of this rule will appear by supposing two individuals to start in business with a credit each of $10,000; one buys a farm for this amount, and the other buys merchandize. Neither are in fact worth any thing, above their debts. By the existing law, the farmer would be compelled to pay a tax on $10,000, while the merchant would not be required to pay a cent's tax. Is this right? Is it equitable? Does this not savor somewhat of the spirit of the aristocratic notions of the old world, which imposes onerous burthens upon the farmer? The impression is irresistable upon my mind, that although we have done much to elevate the farmer to his true rank in society, we have not done enough to improve the powers of his intellect—to make him wise in his business, and useful to the republic.

I come now to the question, what can this convention do in furtherance of these great objects? To this I reply—imitate the industry, liberality and perseverance of the good men who have achieved equally difficult tasks, in other branches of public improvement, in our day and country. Inform the public mind, digest your plans, and enlist the co operation of your fellow citizens. Petition your legislature for the aid which justice and sound policy demand; and if they deny or neglect your prayers, carry your appeal to their fears:—*threaten*, that, with respectful but persevering importunity, *you will continue to urge your claims*, till more auspicious times, or a more enlightened policy, shall crown your efforts with success. Imitate the persevering examples of Ami Dardin and Corn's Higgins, who renewed their applications for legislative justice, or legislative bounty, for more than twenty years, and until they finally gained a hearing, and got their reward. There is no dishonor in being discomfitted in a good cause, even twice or thrice, and there is much pleasure in finally triumphing.

On motion of Mr. Viele of Rensselaer, a committee of one from each senate district was appointed to nominate officers for this convention, and to report names at the next meeting. The committee appointed in accordance with the above motion, was Messrs. A. Van Bergen, H. Holmes, P. Jones, Gen. Hathaway, T. D. Burrall, J. McCollum, Charles Livingston and P. Pelton.

On motion of Mr. Leland of Steuben, a committee of two from each senate district, was appointed to report the proper business to be brought before this convention, and the order of business that ought to be adopted therein.

The committee chosen in pursuance of the above resolution were H. H. Jones and J. L. Graham, of the 1st district; J. Chambers and W. Cunningham, 2d district; A. M'Intyre and Joab Center, 3d district; L. Bradish and G. Wendell, 4th district; J. B. Yates and J. B. Lewis, 5th district; J. R. Drake and Z. A. Leland, 6th district; J. Hopkins and J. C. Fuller, 7th district; C. H. Carroll and L. F. Allen, 8th district, together with the chairman.

The convention adjourned to meet at this place to-morrow at 3 o'clock P. M.

Tuesday, February 9.

The convention met at three o'clock P. M. Mr. Van Bergen from the committee to nominate officers for this convention, reported the following names:

J. Buel of Albany, president. G. Wendell of Washington, 1st vice-president; J. M'Call of Allegany, 2d do.; L. Bradish of Franklin, 3d do.; P. Patterson of Genesee, 4th do. D. L. Dickinson of Broome, and J. J. Viele of Rensselaer, secretaries.

This report was unanimously adopted.

Mr. Carroll of Livingston, from the committee appointed to report the business to be brought before this convention, reported as follows:

The committee of sixteen, who were appointed to consider and report suitable subjects for the action of the N. Y. State Agricultural Convention, have entered upon the consideration of the duties assigned them, with a thorough conviction, that the deliberations of this convention were intimately connected with the interests and happiness of the largest portion of their fellow citizens throughout the state.

(For Remainder, see Cultivator for March.)

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

Vol. III. ALBANY, APRIL, 1836. No. 2.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—Judah Dobson, Philadelphia—Messrs. Hovey, Boston—George C. Thorburn and Alexander Smith, New-York, and Samuel F. Glenn, office of the National Intelligencer, Washington. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

☞ We have made an effort, by putting some pages in small letter, to insert the favors of our correspondents in to-day's paper; but we have not been able to fulfil our wishes. Several are necessarily postponed, as are, also, several other articles prepared for this number. Yet we feel proud of the rich treat which our correspondents have enabled us to present to-day to our patrons.

IRRIGATION.

A highly respected correspondent thinks we have done wrong in discouraging irrigation, in our January number, and suggests, that the turning water from the highway, on to meadows, charged with fertilizing matters, constitutes a branch of irrigation. Our remarks have also attracted the notice of the Hon. J. W. Lincoln, who in the New England Farmer has expressed his "deep regret" at the error of our opinion; and he quotes Blith, Parkinson, Davy, Sinclair, &c, to prove, that irrigation is a great improver of land, and that it adds greatly to its products. All this we can readily admit, without, however, acceding to the proposition, that this branch of improvement, in its systematic form, is suited to the present condition of *our* husbandry. Where every rood, or where every acre of land, is made to support a human being, and the price of labor merely nominal, great expenditure in improving the soil is justifiable and often necessary. But in our country, where the best wild land can be had for ten shillings an acre, and where labor is high, the case is far different. In many parts of the old continent, trenching, or spade husbandry, is extensively resorted to for field crops; and this both improves the soil and increases its products. Yet no one would venture to recommend it as a suitable farm practice here. Circumstances alter cases.

The first chapter on irrigation, suggested by our correspondent, that of diverting the waters from highways, charged with earthy and vegetable matters, upon meadows, does not, in our view, belong to irrigation, nor do we find such a construction sanctioned in any work that has fallen under our notice. *This* practice we decidedly recommend. Irrigation implies the command of water, and its use at stated periods, and not a dependance upon the clouds for a supply. We spoke of *systematic* irrigation, not of *accidental.* And we are prepared also to admit, that in some peculiar cases, and to a limited extent, irrigation may be adopted with advantage even here. Our proposition is, that as a general mode of improvement, or even one of moderate extent, the system of irrigation adopted in Wilts and Gloucester, in Britain, which counties have been cited as examples, is unsuited to our climate and scale of agricultural expenditure. The high respect we entertain for the gentlemen from whose opinion we dissent in this matter, compels us, at least from courtesy, to state the grounds of our dissent. They may be comprised under the following heads.

1. Irrigation seriously interferes with the system of alternating crops, one of the greatest improvements in modern husbandry.
2. It produces coarse and innutricious herbage.
3. It tends to engender disease, in man and beast.
4. It costs more than it comes to.
5. All its advantages may be obtained by good culture. And
6. Its benefits have not yet been demonstrated in our practice.

1. The fact is not generally known, that "over the greatest part of England land is kept permanently in grass, for the purpose of mowing. This system has become the very habit of the country, and by the general adoption of it, beyond a question, *a vast public loss is sustained."—Low.* This grows out of a long perpetuated prejudice in the landholders, who are not the practical farmers, but who make it a condition in their leases. Hence irrigation is resorted to, but even then to a limited extent, to remedy the defects of a bad practice, at war with the first principles of nature, and to increase the otherwise scanty herbage on meadows which have lain in grass hundreds of years. But in the best cultivated districts of Great Britain, where modern improvement has been most apparent, as in Norfolk and in Scotland, and where the alternating system lays at the foundation of farm profits, *irrigation is not practised.* In these districts there are no perennial meadows. By good draining, all grounds are made to alternate in grain, grass and roots. Do the sagacious, industrious and money-making Scotch believe in the utility of irrigation? Loudon says this art is not practised in Scotland; and Low, her late and popular writer and professor of agriculture, says, "in the north of England the practice almost ceases; and on the Scottish side of the Tweed it is yet hardly known as a branch of the rural art."

2. The flooding of meadows must necessarily encourage the growth of rank coarse herbage, far less nutritious than that which grows upon dry grounds; and unless the land is so fitted that the water may be entirely drawn off when required, and this requires generally previous and efficient under-draining, the evil will be a growing and a serious one.

3. Stagnant waters, and soils highly saturated with water, when the vegetable growth of the season is undergoing decay, are always prejudicial to health. "It is by summer flooding," says Low, "that the fatal disease of rot is introduced, so that no sheep should ever touch the meadows which have been flooded during the summer months."

4. To fit lands for irrigation, it is necessary, first, that the surface should be a horizontal level, that the whole may be flooded with water, with suitable embankments and drains, that it may be let on or drawn off at pleasure; or second, that the surface be so graded, and the ground furnished with conductors, feeders, drains, &c., that the water may be made to *run*—for it will not do to permit it to stand, and become stagnant—over the whole surface, and also to be drawn off. A common way is to conduct the water along the upper side of the meadow, to lay the land in ridges in the direction of the inclined plane below, and to conduct the water in shallow feeders along the tops of these ridges, and permitting it to filter down the slopes of these ridges, on each side, to the centre furrows, where narrow drains are constructed to carry it off. The expense varies according to the mode of irrigation, and the nature of the ground. Although, according to Smith and Loudon, it may ordinarily range from five to ten pounds per acre, (=to $22 to $44) and is sometimes less, yet that in Wiltshire, to which we are referred as a pattern, and "where they are anxious to have their meadows formed in the most perfect manner, the expense per acre has amounted to £40," (=to $177·60.) When we consider that in Wiltshire it is a business which *has been* learnt, and compare the price of labor in the two countries, it cannot be extravagant to say, that irrigation would cost fifty per cent more here than it does in Britain. We are afraid our farmers would rather purchase new lands, at a moderate price, than bestow this much to render old lands productive, as water meadows. It is no easy task, says Smith on irrigation, to give an irregular surface that regular yet various figure which shall be fit for the overflowing of water. It is very necessary for the operator to have just ideas of levels, lines and angles; a knowledge of superficial forms will not be sufficient; accurate notions of solid geometry are absolutely necessary to put such a surface proper for the reception of water, without the trouble and expense of doing much of the work twice over.

5. This proposition is proved by the practice of Scotland and Norfolk, already noticed,—and by the opinions of some of the best

practical farmers. "Mr. Bukham," says Sir Arthur Young, "asserts it as a fact, of which he has not the least doubt, that tillage, well managed, would support as much live stock, on the seed, turnips and straw, as the same land would do all under grass; consequently, the corn is all gain to the public—I AM CERTAIN IT WOULD"—adds Sir Arthur. Young meadows produce, besides, a far greater burthen than old ones; their herbage is much sweeter and more nutritious; and their sward constitutes an excellent preparation for heavy crops of grain and roots. "It cannot be doubted," says Low, "that the produce of the cultivated meadow, consisting of the superior grasses and clovers alone, in their young and more juicy state, must be greatly superior to that of the old grasses, mixed as they always are with a class of inferior plants." How greatly will it add to this disparity, if we mix with the old grasses, rushes and water plants, which more or less follow irrigation.

6. The gentlemen who are opposed to us in opinion are both men of wealth, and withal practical farmers. Have they introduced systematic irrigation on their farms? and if yea, to what extent, and with what success? Or will they furnish us data of its profitable introduction, on any thing like an extensive scale, in our northern states?

We often see European methods of culture recommended to our practice, (and no doubt from worthy motives,) illy suited to our husbandry. It is the province of agricultural editors to discriminate between the useful and useless. It was in this spirit that we made our suggestion in regard to irrigation in the north. We are sensible it is an essential branch of improvement in rural labor, in all tropical latitudes; that it is extensively and beneficially practised in the south of Europe, on tillage (though in a different form) as well as on grass lands; and that it is considered indispensable in the culture of the rice crop; yet believing it unsuited to our practice, at this day, we gave *this* as an apology for saying so little on the subject; but we shall be prompt to retract the caution whenever we find cause to change our opinions.

N. B. Since the above was penned, we have read of irrigated meadows near Philadelphia, upon which the average crop of hay is stated at 2½ tons per acre per ann. This is less than the average upon young meadows well managed in the alternating system.

We have also received the conclusion of Judge Lincoln's communication, from which we learn, that he has practised irrigation some fifteen years, and that he is pleased with the result. But we regret to say, he has not furnished any definite data as to cost, product or profit, very material considerations to those who might wish to make experiment. The only fact given to enable us to judge in the matter, is, the declaration, that "*some one*" informed him, that a Mr. Wilkinson obtained from a water meadow, a nett profit more than equivalent to the interest on 200 dollars per acre. We do not call this a great yield in New-York,—it is less than the product of good farming on the *dry* meadows of the Albany barrens.

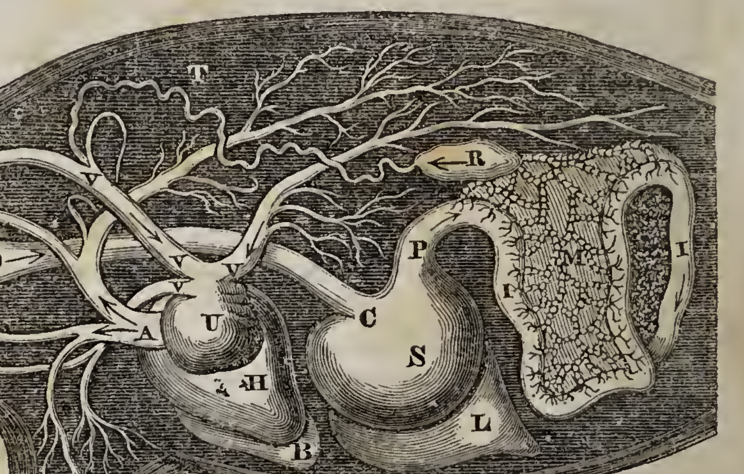
HEALTH

Is the first blessing of life. Without it, wealth, and power, and knowledge, and friends, lose half their value. Whatever, therefore, teaches us how to preserve this blessing, has high regard to our notice. In man, the operations of nutrition are greatly multiplied; the organs which perform them are numerous and complicated in their structure. "The long series of processes requisite for the perfect elaboration of nutriment is divided into different stages; each process is the work of a separate apparatus, and requires the influence of different agents." A knowledge of these organs and these processes, is useful to all, not so much to enable them to *cure*, as to *prevent* disease. Brutes have an almost unerring guide, in the instinct with which nature has endowed them, for the preservation of health. Man is furnished with higher powers and faculties—he is thrown upon the resources of his intellect—the animal and vegetable kingdoms are made subservient to his appetites,—and he is commanded to *learn* how to use them for his greatest good.

The late Rev. Earl of Bridgwater appropriated, in his will, £8,000 to be awarded, for a treatise, or treatises, "on the power, wisdom and goodness of God, as manifested in the creation; illustrating such work by all reasonable arguments, as for instance the variety and formation of God's creatures, in the animal, vegetable and mineral kingdoms; the effect of digestion, and thereby of conversion; the construction of the hand of man, and an infinite variety of other arguments; as also by discoveries, ancient and modern, in arts, sciences, and the whole extent of literature." Under this legacy eight gentlemen were appointed to write treatises, most of which have come to hand, and which are denominated "*The Bridgewater Treatises.*" We are about to make an extract from one of these, "Animal and Vegetable Physiology, by *Peter M. Roget*, M. D."—"On Nutrition," accompanied by a cut, illustrating the system of vital organs in man. This will show their multiplicity, explain their offices, and admonish us of the precaution that is at all times necessary, by a careful attention to the quality and quantity of our food, to preserve them in the healthy exercise of all their functions—and thereby to secure the enjoyment of health. It may readily be conceived, that the derangement of any set of these organs, by food that is unwholesome in quality, or in excess in quantity, by artificial compression of the chest, sudden transitions of temperature, indolence, sloth, impure air, &c., must more or less derange the whole animal system, and cause sickness, and, unless the cause is removed, ultimately the death of the patient. They will serve to demonstrate, besides, in part, the wonderful mechanism of the human system, and lead us to adore the power and wisdom of its Maker. These high considerations of utility must be our apology, if an apology be necessary, for what to some may seem an indelicate representation.

"Besides the stomach," says Dr. Roget, "or receptacle for the unassimilated food, another organ, the heart, is provided for the uniform distribution of the nutritious fluids elaborated by the organs of digestion. This separation of functions, again, leads to the introduction of another system of canals or vessels, for transmitting the fluids from the organs which prepare them to the heart, as into a general reservoir. In the higher orders of the animal kingdom, all these processes are again subdivided and varied, according to the species of food, the habits and mode of life, assigned by nature to each individual species. For the purpose of conveying clearer notions of the arrangement of this extensive system of vital organs, I have drawn the annexed plan which exhibits them in their natural order of connexion, and as they might be supposed to appear in a side view of a quadruped. To this diagram I shall make frequent reference in the following description of this system.

Fig. 5.



"The food is, in the first place, prepared for digestion by several mechanical operations, which loosen its texture, and destroy its cohesion. It is torn down and broken asunder by the action of the jaws and teeth; and it is, at the same time, softened by an admixture with the fluid secretions of the mouth. It is then collected into a mass, by the action of the muscles of the cheeks and tongue, and swallowed by the regulated contractions of the different parts of the throat. It now passes along a muscular tube, called the *œsophagus* represented in the diagram by the letter *(o,)* into the stomach *(s,)* of which the entrance *(c,)* is called the *cardia*.

"In the stomach the food is made to undergo various chemical changes; after which it is conducted through the aperture termed the *pylorus (p,)* into the canal of the intestine, (I, I,) where it is farther subjected to the action of several fluid secretions derived from large glandular organs situated in the neighborhood, as the liver (L,) and the pancreas; and elaborated into the fluid which is termed *chyle*.

The chyle is taken up by a particular set of vessels, called the *lacteals*, which transmit it to the heart (H.) These vessels are exceedingly numerous, and arise by open orifices from the inner surface of the intestines, whence they absorb, or drink up the chyle. They may be compared to internal roots, which unite as they ascend along the *mesentery* (M,) or membrane connecting the intestines with the back; forming larger and larger trunks, till they terminate into an intermediate reservoir (R,) which has been named the *receptacle of the chyle*. From this receptacle then proceeds a tube, which, from its passing through the thorax, is called the *thoracic duct* (T;) it ascends along the side of the spine, which protects it from compression, and opens at V, into the large veins which are pouring their contents into the *auricle*, or first cavity of the heart, (U,) whence it immediately passes into the *ventricle*, or second cavity of that organ (H.) Such, in the more perfect animals, is the circuitous and guarded route, which every particle of nourishment must take before it can be added to the general mass of circulating fluid.

"By its admixture with the blood already contained in these vessels, and its purification by the action of the air in the respiratory organs (B,) the chyle becomes assimilated, and is distributed by the heart, through appropriate channels of circulation called *arteries*, (of which the common trunk, or *aorta*, is seen at A,) to every part of the system; thence returning by the *veins (v, v, v,)* to the heart. The various modes in which these functions are conducted in the several tribes of animals will be described hereafter. It will be sufficient for our present purpose to state, by way of completing the outline of this class of functions, that, like the returning sap of plants, the blood is made to undergo farther modifications in the minute vessels through which it circulates; new arrangements of its elements take place during its passage through the subtle organization of the glands, which no microscope has yet unravelled: new products are here formed, and new properties acquired, adapted to the respective purposes which they are to serve in the animal economy. The whole is one vast laboratory, where mechanism is subservient to chemistry, where chemistry is the agent of the higher powers of vitality, and where these powers themselves minister to the more exalted faculties of sensation and intellect."

NOTES ON FARMING.—FROM MY MEMORANDUM BOOK.

LIME.

By the fermentation it induces, the earth is opened and divided; and, by its absorbent and alkaline qualities, it unites the oily and watery parts of the soil. It seems also to possess the property of collecting the acid of the air, and of forming with it a combination of great use in vegetation. Thus robbing the soil of its oily particles, it will in time render it barren, unless supported with manures of an oily nature.—*Geo. Ess. p.* 29. Its great use upon a sandy soil is, by mechanically binding the loose particles, and thereby preventing the liquid parts of the manure from escaping out of the reach of the radical fibres of the plants.—*Id.* 30. Upon clay the effect is different: for by means of the gentle fermentation it induces, the unsubdued soil is opened and divided; the manures laid on regularly, come in contact with every part of it, and the fibres of the plants have full liberty to spread themselves.—*Id.* 28. Although we cannot describe all the soils that lime will operate beneficially upon, we can specify some upon which it does operate well. 1. Upon all soils, being drained, which contain an abundance of ligneous or woody matter, as reclaimed swamps, and upon those containing insoluble vegetable matter, i. e. matters which will not dissolve in water, by reason of their chemical combination, quick lime will be beneficial, by rendering the inert matter soluble, and fitting it to become the food of plants. 2. Upon all soils deficient in calcareous matter, or carbonate of lime, be they even stiff clays or porous sands, mild lime, or lime that has become saturated with carbonic acid, is unquestionably beneficial. It corrects the mechanical defects of clays and sands—renders manures more beneficial, and droughts less prejudicial. Quick lime soon becomes mild lime after it is commingled with the soil. As a general rule, carbonate of lime is beneficial upon all soils belonging to the primitive formation, and to transition formations that are deficient in this earth.—In the use of this mineral, we see the importance of knowing the constituents of soils.

MARL.

Lime mixed with clay, comes nearest to marl of any fictitious body that we know of.—*Geo. Ess. p.* 28. Marl is generally a combination of clay and lime, as in blue and other clay containing this carbonate; or of lime and sand, as in shell marl. The first is best fitted for a sand, the latter for a clay soil.

MANURING

Was held in such high estimation by the Romans, that immortality was given to Stuentius for the invention. They collected it from every source which has been thought of by the moderns, vegetable, animal and mineral, territorial, aquatic and marine. Animal dung was divided into three kinds, that which is produced by birds, by men, and by cattle. Pigeon dung was preferred to all, and next human ordure and urine. Pigeon dung was applied as a top-dressing; and human dung, mixed with the cleanings of the villa, and with urine, was applied to the roots of the vine and olive. Dunghills were directed to be placed near the villa, their bottoms hollowed out to retain the moisture, and their sides and tops defended from the sun by twigs and leaves.—*Enc. of Ag. p.* 25.—Good farmers know how to prize and to economise the food for their animals—they save even the crumbs—but few, very few, are equally careful of the food of vegetables, which are to feed and fatten their animals. What an astonishing quantity of the latter is disregarded or wasted upon our best managed farms. Every substance which has formed a part of a vegetable or an animal, however disgusting, is convertible into the food of vegetables. The urine of animals, which with us all runs to waste; the dung of fowls, which we generally disregard; all vegetable and animal matters which taint the atmosphere; the filth about our dwellings, the refuse and slops of our kitchens, which are seldom husbanded; and the ashes from our hearths, all afford materials upon which plants live, grow and multiply their increase. Not a particle of vegetable or animal matter is destructible. It may die, wither and rot—it may be reduced to a fluid, nay, a gaseous state—and become invisible to the eye—and yet it is not lost, not destroyed, however often it may change its form. These elements, controlled by natural laws, will again unite, assume an organic form, and become again parts of vegetables and animals. Truly "all flesh is but grass."

PRESERVING WHEAT FROM SMUT.

The French chemists have multiplied experiments to preserve wheat from the disease which is indiscriminately named blight, smut, &c. This is well ascertained to proceed from microscopic grains, or atoms of black dust, which germinate, reproduce themselves, and take possession of the ear. In the *Bibliothique Physico-Economique*, liming, by immersion, is said to be the only preventive, warranted by science, and sanctioned by experience. The directions given for this operation enjoin, that in order to destroy this germ in 4½ bushels of wheat, six or seven gallons of water must be employed, according to the greater or less dryness of the grain, and from 2 lbs. 3 oz. to 2 lbs. 10 oz. of quick lime, according as its quality is more or less active, or to the greater or less degree of smut in the corn. Bale a part of the water, and slake the lime with it, after which add the remainder of the water. The heat of the whole of the liquid ought to be such as that we can with difficulty bear the hand in it. Then gently pour the lime water upon the grain placed in a tub, stirring it without ceasing, at first with a flat stick, and afterwards with a shovel. The liquor should at first be three or four fingers breadth over the level of the wheat. Leave the grain to soak twenty-four hours, turning it five or six times, when it may be sown.

Grain limed by immersion, does not incommode the sower, like that which is limed in the ordinary way. It adheres like a varnish to the surface of the grain; its germination is quicker, and, as it carries with it moisture enough to develope the embryo, the wheat will not suffer for want of rain; insects will not attack it, as they cannot bear the acrid taste of lime.—*See Rep. of Arts, v.* 34.—The utility of lime in preventing smut is well known to many of our farmers; but the mode of doing it by immersion, according to the above directions, has manifest advantages over the common mode of using it in a dry state.

GRAPE DIET.

The physicians of Geneva send some of their patients to the Pays de Vaud, during vintage, to take what is called a regular course of grapes—that is, to subsist three weeks entirely on this fruit, without taking any other food or drink. In a few days a grape diet becomes agreeable, and weak persons, and also the insane, have found great relief from subsisting on it for three or four weeks—*Bakewell's Travels, v.* 11, *p.* 206. We can add our own authority in confirmation of the utility of a grape diet. We have twice made grapes our almost entire food, from ten to fourteen days each time, when confined with a bilious fever. We ate them without stint—they were at no time ungrateful to the stomach, and we are satisfied they did us much good. Reader, have you planted a grape vine? If not, do it the coming month.

TO PROMOTE THE PUBERTY OF THE APPLE AND PEAR.

John Williams planted seed in pots, in November, 1809, transplanted after midsummer in the following year, into the open ground—transplanted again in the autumn of 1811, six feet apart—pruned away every winter the trifling lateral shoots, leaving the larger laterals at their full length to the bottom of the plants, and gave a good exposure to the sun. At the height of six feet the branches ceased to produce thorns. One yielded fruit at four years old, and several at five and six years.—*Rep. of Arts,* 1819, *p.* 175. Repeated transplanting retards the growth of wood, and induces premature maturity in the plant—it converts, for want of abundant nourishment, wood buds into fruit buds. It is calculated to produce early bearing, but not to produce stately long lived trees.—Precocity in vegetables, as in animals, is rather indicative of short life. Frequent transplanting is often resorted to by the florist, in order to induce plants to produce double flowers, or to produce an abundance of flowers, and it is found highly efficacious in the balsam,coxcomb,&c. It deranges the natural organization of plants, and produces *monsters,* a term applied by botanists to double flowers. It is by a process like the one pursued by Williams, that Knight so early obtains fruit from seeds, the blossoms of which he fecundates artificially, and it is to this that we are probably indebted for many of the fine fruits that enrich our tables, and for many of the gay flowers that embellish our gardens.

THE EARTHS NOT FOOD FOR PLANTS.

Giobert mixed together lime, clay, sand and magnesia, the true earths, in such proportions as are generally to be met with in fertile soils, and moistened them with water. Several different grains were then thrown into this artificial soil, which germinated indeed, but did not thrive, and perished when the nourishment of the cotyledons—the lobes of the seeds—was exhausted.—*See Enc. of Gard. p.* 201. Hence it is neither earths, nor water, nor air, nor all combined, which afford the true food of plants—though all are essential agents in preparing and elaborating this food. It is vegetable and animal matters—*dung*—filthy dung—that feeds and fattens the plants that administer to the wants and comforts of man and beast.

A GOOD SOIL,

According to Bergman, contains four parts of clay, three of sand, two of calcareous earth, and one of magnesia, and *quantum sufficit* of vegetable matter. In 400 grains of good soil, Fourcroy found 52 of water, sand 240, vegetable fibre 5, vegetable extract 3, clay 48, magnesia 2, oxide of iron 14, calcareous earth 30; loss 6.—*Loudon, p.* 200. The ability, in the farmer, to analyse his soils, would not only serve to discover their defects, but would enable him often to correct them, at little cost, and to apply to them, with more certainty, the crops to which they are most suitably adapted.

TIMBER.

The best timber is that which is seasoned before it is cut down. If a tree be barked the year before it is cut down, the sap is expelled, and the alburnum is converted into wood in the course of the year.—*Enc. of Gard. p.* 174.

URINE

Is a highly fertilizing material. It may be used in the winter, says Gorrie, (Col. Hart. Soc. 11, 290,) on the currant and gooseberry—in summer upon all vegetables, diluted with two parts of water. In China it is solicited on the way side, of travellers, to enrich the soil.

THE APHIS.—There are many species of this insect, which infest various plants, one of which is well known as the *cabbage louse,* and is found upon this vegetable. Hayward describes that which preys upon the peach. The eggs are deposited in autumn, on the embryo bud, and are hatched with the first start of vegetation in spring; and they multiply so fast, that in a few days there are several generations of them, which become destructive to the young fruit and tree. The only successful application was found to be snuff, repeatedly applied with a barber's puff. It has been ascertained by the experiments of M. Bonnet and other naturalists, that males of the aphides are produced only every tenth generation,and then but few in number; and that one copulation serves for ten generations.—*See Rep. of Arts,* 1829, *p.* 357. We have found the calix of the peach blossom, the green leaves which envelope the base of the petals, filled literally with the aphis.

IMPORTANCE OF SALT TO CATTLE AND SHEEP.

Salt, as a condiment, is as grateful and as beneficial to domestic animals as it is to man. It serves the same purposes to both. We can readily determine, that it promotes our health and comfort best when taken with our daily food. Then why not equally so to the cattle of our farms? It may be apprehended, that if permitted, the latter will take it in excess. This is not so. If they have constant access to salt, domestic animals will take no more than is required by their natural wants. But if given to them only at long intervals, they will then, if opportunity presents, indulge in it to excess. We have had salt troughs under the sheds in our yards for a dozen years, in which salt has been constantly kept, and to which our cattle have had daily access; and they have not only *not* taken it in excess, but they have been wholly exempt from disease; and although they have been fed three months in a year with ruta baga, and pastured often in fresh rank clover, they have in no case been hoven, nor has their milk or butter been tainted with the flavor of the turnip.

Some years ago, the duty upon salt in Great Britain, was so high as almost to preclude its use for farm stock. Petitions were sent to parliament, for a repeal of these duties, so far as they affected agriculture. The committee to whom the subject was referred, called before them many eminent farmers and others, to testify as to matters involved in the inquiry. The evidence was voluminous and conclusive, not only that the duty amounted almost to a prohibition of its use for cattle, and for the poor, but that where this privation had been felt, diseases had multiplied, to man and beast, to an alarming extent. We refer to the London *Repertory of Arts,* vols. 34 and 35 for particulars. In the mean time we give an abstract of the evidence of two of the witnesses, so far as regards the benefits of the *daily* use of salt to animals, well known as men of distinguished eminence, and of extensive practical agricultural knowledge.

J. C. Curwin, M. P. states, among other advantages of giving salt to his animals, daily, that it removed the unpleasant flavor from the milk of cows fed with turnips; that it greatly lessened inflammatory diseases—promoted digestion—increased the quantity of milk, and disposed the animal to fatten. That it improved the general health and spirits of horses, rendered the gloss of their coats remarkably fine, and, given at the rate of 8 to 12 ounces per day, rendered fit for service some which had become disabled by a disorder called *the grease.* That given to sheep, in the quantity of two ounces per day, it preserves their health, renders them sound, and sensibly improves their condition.

Lord Somerville, considers salt all important to sheep. Without it, even on dry soils, his flock became sickly, and he lost many. Giving it twice a week, they were healthy. Salt preserves hay, and restores it when damaged. In the humid climate of Great Britain, his lordship feeds a ton of salt to every thousand sheep annually. It is particularly serviceable with green food, clover and turnips, and prevents and cures the *hoven,* which is *pent-up wind,* occasioned by excess of fermentation in the stomach. In a wet season he did not lose a sheep, although fed with turnips, and he considerd salt as a specific against disease. He generally gives it with hay, about twenty-five pounds being sifted on to every ton.

These facts are of high authority, and of deep interest to the cattle and sheep farmer, and of general application. The low price of salt among us will enable every farmer to profit by them.

GRAPE CULTURE.

Every bunch of grapes, according to Knight, in the *Hort. Trans.* commences its formation as a tendril, and it is always in the power of the cultivator, to cause it to remain a tendril. The blossoms are all additions, the formation of which is all dependant upon agents, viz., upon the leaves, which are required to elaborate the food, and upon a good exposure to light and heat. Hence the importance of pruning in autumn or spring, to thin and shorten the wood; and in summer, to increase the exposure of the fruit to atmospheric influence. This practice is too much neglected, or too sparingly performed, by novices in the grape culture. It is essential to native as well as to foreign varieties. It is too common a practice to train the Isabella and other native kinds on arbors, and to let the wood accumulate as it will, without using the knife, or using it but sparingly. The consequence is, that the fruit is lessened, for want of exposure, its time of ripening retarded, and its quality sensibly impaired. One of the most extensive cultivators of the native grape, Mr. E. H. Bonsall, of Germantown, Pa., says, that it is his practice, even after the vines have attained a full capacity for production—say five years from the cutting, to cut them in low—his object is to prepare them for bearing an average of fifty clusters to each, leaving several shoots, *from three to five joints to a vine,* for this purpose; and that when fresh pruned, they will not be more than *four feet* high at the greatest age. We saw Mr. Bonsall's vineyard, consisting of some acres, in the summer of 1833, and it had a remarkably fine appearance.

In the *summer pruning* of the grape, let these rules be observed: 1. Suffer only one shoot, and let that be the strongest, to grow from each joint; and if these are very near each other, pinch off every other one. 2. When the fruit has set, which will always be upon the new growth of wood, and generally on lateral branches, shorten the fruit bearing laterals to three or four eyes above the fruit, and the laterals not bearing fruit to one eye from the main vine. The object of the first is to throw the sap into the fruit, instead of permitting it to become exhausted in the formation of new wood; of the second, to preserve the bud at the base of the lateral, which is the fruit bud of the following year; and of both, to prevent the too great accumulation of wood and foliage. The main vines may soon after be shortened. The extreme buds on the main vines, and generally on the laterals, will generally burst, and throw out a new growth. These may also be occasionally shortened, without prejudice to the vine or fruit. When the fruit has obtained its growth, the process of ripening may be facilitated by thinning the foliage about the fruit, so as to give it a better exposure to the sun and air.

In *winter pruning*, the laterals may be all cut into the main vines, taking care not to injure the buds at their base, and the main vines may be shortened to the required length of two to six feet.

Mr. Bonsall's mode of training his vines deserves notice as well for its cheapness as for its utility—of this we speak from experience. He sets chesnut posts, at the distance of ten feet, firmly in the ground, on the line of his rows. He drives into the face of these, at regular intervals, three (we prefer four) stout nails, nearly up to the head. He then stretches wire, of the size denominated No. 11, along the whole line, making it fast at the end, and giving it a turn round the nail in every post. The posts stand five feet above the ground; the first wire is two and a half feet from the ground, the second intermediate between that and the top of the post, and the third at the top. To these wires the tendrils readily clasp, and much labor is saved in tying, while the wires do not intercept the sun from the fruit and foliage. Tinned wire, though it costs more, is preferable to the common sort, as it is far less liable to corrode. Mr. Bonsall plants his rows seven feet apart, and at the distance of four feet in the rows. It should be borne in mind, that the richest grounds do not suit the grape so well as those of moderate fertility—as the former produce a superabundance of wood, and fruit of inferior quality.

NOTICE OF CORRESPONDENTS.

Levi Moore, of Cortland, suggests the propriety of planting apple trees on each side of the highway, in the line of the fence, seven, or ten or twelve feet apart, with a view of converting them into fence posts, and of using the fruit as hog and cattle food. He thinks it would be great economy in the end.

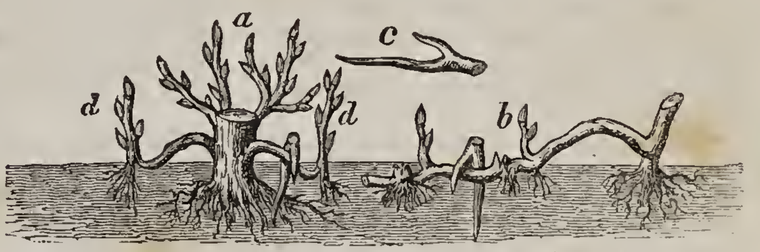
" M. J." will find a part of his queries answered in our last, and the residue in this number. The crowded state of our columns precludes our enlarging now upon the subject of lunar influence. His ground, as he describes it, is well suited and well prepared for flax. We do not think plaster would benefit the crop, and yet we advise that he plaster a *part*, and advise us of the results.

" A." who dates from Salisbury, inquires what quantity of wheat, rye, oats, &c. should be sown on an acre;—and which are the best kinds of sheep for him to cultivate—rather difficult questions for us to solve satisfactorily. If sown early, on ground well prepared, five or six pecks of wheat or rye, and two bushels of oats to the acre, are the usual quantity; if sown late, somewhat more is advisable. Early sown grain tillers better than that which is sown late; and so does grain upon a rich, more than that sown upon a poor soil. More seed too will vegetate and grow in a well pulverized soil, where the roller is used, than in a soil that is lumpy and badly tilled, where the roller is not used. Our "young beginner" should note down his practice, and its results, and he will soon be able to adapt his seed to his soil. The Saxony and Merino are the best sheep for fleece—the Southdown and New-Liecester for mutton. They are all advertised in our February cover.

G. W. Robinson, of Baldwinsville, Onondaga, N. Y., wishes to know where he can procure seed and cuttings of the Chinese mulberry, *(m. multicaulis,)* and the price at which they are respectively sold. The seed is not to be had in the United States. Those who have cuttings will please advise Mr. R. by letter, of the price, &c.

PROPAGATION BY LAYERING.

Fig. 6.



This mode of propagating is employed to multiply various kinds of plants, and in many species and varieties it presents one of the readiest modes of effecting this object. The process consists in burying a part of a branch, in the earth, in order to have it strike root, that it may then be separated from its parent stock, and ultimately become an independent plant. The operation may be confined to a single sprout or branch, or the entire top, if the size of the plant will admit, may be laid; and with a view to produce one or many plants. The prevailing nursery practice, upon trees, is, to cut off the main stock at the surface of the ground; a number of sprouts will spring from the stool, and make a strong growth the first season. The spring following, before the sap flows freely, the ground is well dug about the stool, and the sprouts are laid; that is, the shoot, or extremity of the shoot, intended to become a new plant, is half separated from the parent plant, at a few inches distance from its extremity, and while this permits the ascent of the sap at the season of its rising, the remaining half of the stem, being cut through and separated, forms a dam or sluice to the descending sap, which, thus interrupted in its progress, exudes at the wound in the form of a granular protuberance, which throws out roots. In plants difficult to take root, the knife may be drawn up an inch from the notch, through the pith, separating thus far the two halves. Make then a hole in the dug soil, with a spade or wooden spatula, press down gently into it the part notched, three or four inches, fasten it there with the forked stick shown in the cut, raise the end of the shoot to a perpendicular direction, and some inches at least above the surface of the ground, put in the earth, and press it gently down. Some layers will become sufficiently rooted the first season, others require two seasons. Plants that strike from cuttings, as the willow, grape, currant, gooseberry, &c., if notched between the buds, and often without this precaution, and buried, except the extreme point, will produce roots at each joint, and a sprout from most or all of the buds. *(a)* in fig. 6, shows a stool with two branches laid, *(b)* an entire branch or vine laid, *(c)* the stick to hold them in their place. When sufficiently rooted, the layer is separated from the parent stock, and planted out, *(dd)* two laid branches.

A common mode of performing the operation, is to omit the *notch* in the laid branch—but to enter the knife just below a bud, as far as the pith, and to make one cut only, by extending the knife an inch upwards through the pith, thus cleaving the layer that the parts shall not again unite. A little coarse sand, thrown in under the cut part of the layer, facilitates its taking root.

PROPAGATION BY CUTTINGS.

The currant, gooseberry, grape, mulberry, privet, plane or button wood, some kinds of apples, as the codlins and burknots, quince, and many ornamental shrubs, are readily propagated by cuttings. So are, of border flowers, the dahlia, rocket, cardinal flower, lichness, &c. Although some of these cuttings are usually taken off in autumn, winter or spring, and readily strike, yet there are others, that, according to Loudon, ought to be taken from the mother plant when the growth is most rapid, or when the cutting most abounds in sap, in order that, in returning by the bark, it may form a callous or protruding ring, of granular substance, between the bark and wood, whence the roots proceed. This remark applies principally to green-house plants. As this callous, or ring of spongy matter, is generally best formed in ripened wood, the cutting, when taken from the mother plant, should contain a part of the former year, or in plants which grow twice a year, of the wood of the former growth.

The preparation of the cutting depends on, or is guided by this principle, that the power of protruding buds or roots, resides chiefly, and in most cases entirely, at what are called joints, or at those parts where leaves or buds already exist. Hence it is that cuttings ought always to be cut across, with the smoothest and soundest section possible, at an eye or joint. And as buds are in a more advanced state in wood somewhat ripened, or fully formed, than in a state of formation, this section ought to be made in the growth of the preceding season, or as it were in the point between the two growths.

Cuttings need not exceed in length six to twelve inches, should ordinarily embrace four or more buds, and the terminal buds, being often not well matured, may be cut off. But one, or at most two buds, need be left above the surface of the soil, and in the grape these may be covered with loose earth. The short jointed wood of the grape is preferable, as it is more indurated, and contains more concentrated food, to produce roots and leaves, than long jointed wood. In the currant and gooseberry, if it is desired to grow them on single stems, instead of stools, all the buds but two or three at the upper extremity should be carefully gouged out with a sharp knife. Cuttings of the grape, currant, gooseberry, and of most deciduous trees and shrubs, may be taken from the mother plant any time after the fall of the leaf, and before the swelling of the bud in the spring, and may be preserved by being kept in a moist cellar, or buried in the earth. In planting, the earth should be made perfectly mellow, to enable the young roots to shoot freely. The ground should therefore be dug, a narrow trench made to insert the cuttings, and the earth pressed well around them after they have been put down.

Large Crops down East.—The Massachusetts Society have awarded premiums to John Smith, William Carter, Henry Sprague and Payton Williams; the first for growing 88 bushels oats on one acre; the second for 58 bushels of barley on an acre; the third for 50½ do. do.; the fourth for 515 bushels potatoes on do., and for 35 bushels spring wheat on an acre. The Kennebec Society have awarded two premiums for corn crops, one amounting to 108, and the other to 81 bushels per acre. Until since the establishment of agricultural societies, our brother Yankees would not believe that such crops could be raised any where.

THE CULTURE OF FLAX,

Has very much diminished, with the decrease of household manufactures, since the establishment of cotton mills, until very little is now used in the domestic way. In some districts, however, the culture is reviving, for the supply of linen or cordage manufactories, of which we are advised of two in Rensselaer, one in Lewis, and one in Jefferson; and also merely for the seed. This seems like killing sheep for their pelts, and throwing away the carcase. The fibre of flax is certainly worth saving; and with the new facilities of rotting, and machinery for cleaning, it *is a profitable* business, as we intend to show in the sequel. Having had questions propounded to us upon this head, by a correspondent in Yates, who proposes to go extensively into the flax culture for the *profit on the seed*, we will offer some brief remarks upon its culture, and give some illustrations of its being a *profitable culture.*

The soil adapted to flax, is that which contains a large portion of vegetable matter, of a loamy quality, and withal rather moist, though not wet. It is a great exhauster of the soil, if suffered to mature its seed, but less so if pulled green.

The best preparation for flax is a green sward, nicely turned over in the fall, or early in the spring, and harrowed till the surface is perfectly mellow.

The quantity of seed will depend upon the object of culture. If raised for seed only, half a bushel to the acre will suffice; if for the lint only, two bushels are sometimes sown; if for both, an intermediate quantity will answer best. The less seed, within the limits mentioned, the greater will be the product in seed, and less and coarser the product in lint. The seed is always sown broadcast, and always covered with the harrow. The processes of pulling, threshing, &c. are understood by all. If the object is seed, the plants must be mature before they are pulled, which is indicated by the hardened state of the seed vessels, the yellow color of the stems, and the falling off of the leaves. When good *flax* is wanted, pull when the seed has its growth, but not maturity. When wanted for the finest fabrics, as cambrics, &c., pull when it begins to flower. Sow early in May.

The product varies from 300 pounds to half a ton of dressed flax to the acre, and from six to eighteen bushels of seed.

The profits of the crop may in some measure be judged of from the following facts, which we derive from unquestionable authority.

Mr. T. S. Knapp, of Brownville, sowed thirty-seven acres, partly a grass lay, and partly stubble. His profit upon the crop, after deducting $3 per acre rent, and his labor, was $400, or about $11 per acre.

In 1835, Geo. Brown, esq., of the same place, sowed twenty-five acres in flax, and realized a nett profit of nearly $500 from the crop.

In the same year, Maj. Kirby, of the same place, sowed six acres, partly upon stubble, and partly upon green sward, with one ploughing—half a bushel of seed to the acre. The ground was well stocked with Canada thistles, which throve remarkably; yet notwithstanding, the six acres produced him 108 bushels 12 pounds seed, and seven tons and three-quarters of dressed flax. The proceeds

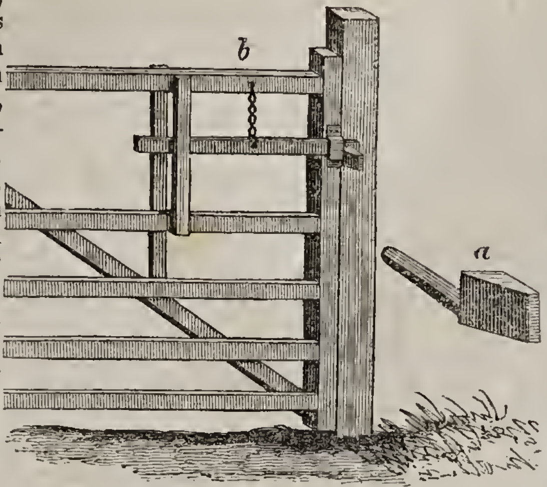
of the crop amounted to, ...	$270
And the culture, pulling and threshing—the rotting being done by the manufacturer—to about	70
Leaving a profit of.....	$200

or $33⅓ per acre.

New-Jersey Marl, Peaches, &c.—Marl has been found in great quantities in the lower part of New-Jersey, of a peculiar and highly enriching quality. A letter to the editor, dated Hights' Town, March 8, says—"I am sorry to inform you, that nearly all our peach buds, are killed again, as they were last year. Our region of country supplies generally the New-York market. It is discouraging—we are going into the Mulberry business, our climate and soil being well adapted to the trees. Our Squancum marl will afford a communication for the Cultivator in a short time. Professor Rogers says it possesses more potash than two or three bushels of undrawn ashes. The lands have risen twenty-fold in that part of the county of Monmouth." Lands have risen twenty fold in consequence of the wonderful provisions which nature has made for rendering them fertile, and which man has been too indolent, or too unlearned to discover until recently. And nature has been thus bountiful every where. Almost every district contains the materials to render the soil productive, if we would search them out and apply them. Most of our sandy districts are underlaid with clay marl, more or less rich in carbonate of lime, which constitute the very materials, when blended with sand and manures, for a good soil. Our correspondent adds, that 120 bushels of Squancum marl is as much as the acre will receive for the first dressing. Twenty to 40 loads of blue clay, to the acre, is also a good dressing. The effects of marl are not transitory, like those of manure; their benefits are abiding—they improve the earthy elements of a soil—they render it more retentive of moisture and manures, and improve a light or sandy soil for most of the valuable crops in husbandry.

GATE FASTENING.

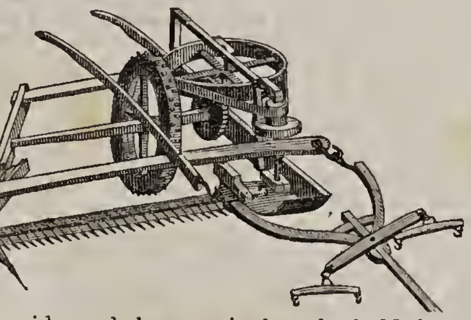
Fig. 7.



B. Mather, Esq. of Schaghticoke, has described to us a gate fastening, in extensive use in his neighborhood, which for simplicity and cheapness, and convenience, we have not seen surpassed. We will try to make our readers acquainted with it, by the aid of the annexed cut. The gate is constructed like the one figured in our last volume, with its principal weight towards the heel, a strong bar on the top, and so hung that it shuts readily by the force of gravity. The latch is a piece of hard wood, about 2 ft. long, 2½ inches broad, and 1½ thick, or it may be made of iron. It is suspended by a small chain attached to the upper bar, as shown at *(b,)* so that when it strikes the bevel of the catch, on shutting the gate, it falls back, fastens, and when at rest, passes to the opposite side of the catch, behind the shoulder. It is so adjusted as to allow of little or no play, except lengthwise. The catch, *(a,)* may be also made of a piece of hard wood or of iron, and driven into an augur hole in the post. It is like a common door catch, except that the bevel is towards the gate, and not above. It has a substantial shoulder, which serves to hold the latch when it passes behind the bevel. This fastening may be made by any farmer, and the chain may be made of stout wire. It has the advantage of always becoming fastened whenever the gate is shut. The latch in the cut should have been four inches lower, near the upper slat.

AMBLER'S MOWING MACHINE.

Fig. 8.



Annexed we give the drawing of a mowing machine, which has been recommended to our notice, but which we have not seen in operation. The grass is cut by a scythe extending along above the teeth or comb, 6½ feet long, which has an alternate movement to the right and left when the machine is in motion. It cuts a swath 5 ft. wide, and about an inch and a half above the surface of the ground. The grass is left upright where it grew, which facilitates its drying, and saves the labor of spreading; and it is said the machine can be used upon all surfaces where the revolving horse rake can be used. It is furnished with three spare scythes, which may be shifted at pleasure in two minutes. About 100 acres of grass were cut with the model machine last season, in Columbia county, and at the rate, it is stated, of an acre in two hours. The machine is drawn by two horses, which travel on the mown grass. The price is from $60 to $70. Any further information may be had by addressing Mess. Beale & Griswold, Spencertown, Columbia county, who are the proprietors of the patent right in the counties east of the Hudson, including Long Island, and in Massachusetts and Connecticut. Gentlemen in whose opinions we repose confidence, assure us, that the machine is a valuable acquisition to our husbandry.

Let nothing foul or indecent, either to the eye or the ear, enter those doors where youth inhabits.—*Juv.*

THE HOUSEWIFE.

A *good* housewife is one of the first blessings in the economy of life. What we mean by *good* is, that she possesses those qualifications, and exercises them, which are essential to the good order and economy of a family, the tidy appearance, good manners and respectability of the children, and the comfort and enjoyment of the domestic circle. She should understand, practically, every branch of household duty, so as to be able to perform it on an emergency—and these emergencies are liable to occur to all—and at all times be able to superintend and direct. Depend upon it, men put a great value upon the housewife qualifications of their partners, *after* marriage, however little they may weigh with them *before*; and there is nothing which tends more to mar the felicities of married life, than a recklessness or want of knowledge, in the new housekeeper, of the duties which belong to her station. We admire beauty, and order, and system, in every thing, and we admire good fare. If these are found in their dwellings, and are seasoned with good nature and good sense, men will seek for their chief enjoyments at home,—they will love their home and their partners, and strive to reciprocate the kind offices of duty and affection.—Mothers that study the welfare of their daughters, will not fail to instruct them in the qualifications of married life; and daughters that appreciate the value of these qualifications, will not fail to acquire them. To aid them in doing this, we shall occasionally make some extracts that we deem in point, and perhaps proffer some hints of our own, particularly in the art and mystery of cooking; not that we would encourage epicurism, but that we think there is great room for improvement, both as regards comfort and economy, in the fashion or practice of the day. "A fundamental error in domestic life, of very serious extent," says the authority which we are about to quote, "involving no less the comfort than the health of the family, arises from the ignorance, or mistaken notions, of the mistress of the house upon the subjects of diet and cookery." We begin with the following extracts.

"Boiling.—Put your meat into *cold* water, in the proportion of about a quart of water to a pound of meat: It should be covered with water during the whole process of boiling, but not drowned in it; the less water, provided the meat be covered with it, the more savory will be the meat, and the better will be the broth.

"When the pot is coming to a boil, there will always, from the cleanest meat and clearest water, rise a *scum* to the top of it, proceeding partly from the water; this must be carefully taken off as soon as it rises. When you have skimmed well, put in some cold water, when it will throw up the rest of the scum.

"The water should be heated gradually, according to the thickness, &c. of the article boiled. For instance, a leg of mutton of ten pounds weight should be placed over a moderate fire, which will gradually make the water hot, without causing it to boil, for about 40 minutes; if the water boils much sooner, the meat will be hardened, and shrink up as if it was scorched: by keeping the water a certain time heating, without boiling, the fibres of the meat are dilated, and it yields a quantity of scum, which must be taken off as soon as it rises. Water never becomes any hotter than boiling heat, 212°, though it boil ever so hard, if the steam or vapor can escape.

"Two mutton chops were covered with cold water; one boiled a gallop, while the other simmered very gently for three quarters of an hour: the chop which was slowly simmered was decidedly superior to that which was boiled; it was much tenderer, more juicy, and much higher flavored. The liquor which boiled fast was in like proportion more savory, and when cold had much more fat on its surface. This explains why quick boiling renders meat hard, &c., because its juices are extracted in a greater degree.

"The old rule of 15 minutes to a pound of meat, from the time boiling commences, we think rather too little: the slower it boils, the tenderer, the plumper, and whiter it will be.

[These rules apply particularly to dried codfish. To have this *well* cooked, the water should not be suffered to *boil*, but merely to *simmer*.]

"Let the covers of your boiling-pots fit close, not only to prevent unnecessary evaporation of the water, but to prevent the escape of the nutritive matter, which must then remain either in the meat or broth; and the smoke is prevented from insinuating itself under the edge of the lid, and so giving the meat a bad taste.

"If you let meat or poultry remain in the water after it is done enough, it will become sodden and lose its flavor."—*Cook's Own Book.*

To boil a ham.—Put in as little water as will answer, regulate the fire so that it may be an hour in coming to the boiling point,—let it boil two hours moderately;—then take it out without a fork, and plunge it into cold water. When cold take off the skin, and garnish it for table. The cold water fixes the juices in the meat, which consequently renders it finer and better flavored.

CONKLIN'S REVOLVING PRESS HARROW.

Fig. 9.

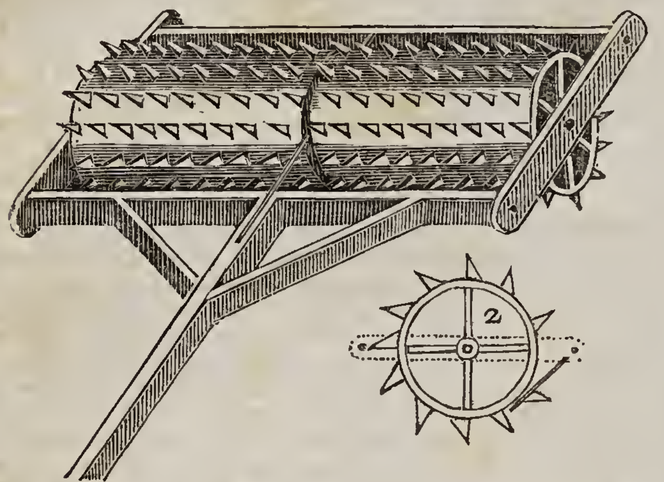


Fig. 2, represents the end of one of the cylinders, showing in particular, the manner in which the teeth, which are attached to the frame behind, operates in clearing the teeth of the rollers.

The machine consists of two cylinders, 20 inches in diameter, and 3 feet long, formed of cast iron staves, which are bolted to end pieces or heads, in the centre of which are boxes, similar to those of a cart-wheel, and revolves on an axle, in the same manner. The teeth are of wrought or cast iron, and are inserted in the staves, and are fastened by means of keys or nuts upon the inside.

The use of this implement is—

1. To scarify pasture or meadow grounds, to root out mosses, fit them for grass seeds, and thus increase the product.
2. To scarify stiff clays and tough sward grounds, after they have been once ploughed, which this harrow pulverizes and fits for the crop.

Though we have not seen this machine in operation, from the principles on which it is constructed, and the excellent character and representations of the patentee, we are induced to believe it is an excellent implement for the uses intended. The patentee is Mr. **John C. Conklin**, of Peekskill, Westchester county.

Cattle Farming in Ohio.—The Ohio Farmer gives a list of 58 graziers in that state, whose aggregate number of cattle amount to 11,802 head. The following are the names of some of the largest graziers:

C. Bradley & Co., Marion,	1,550	Dan. Fickle, Marion,	400
John Halderman, Big Isld.	460	Mess. Kirby, Gr. Prairic,	600
C. Halderman, do.	700	Bushby & Welch, do.	650
Mess. Drake, Clariden,	450	Ballantinc & Baudelch,	350

NOTES ON FLEMISH HUSBANDRY.

(Concluded from page 2.)

Division No. 7—Rye soil—Silex 81½; alumine 15; oxyde of iron 3—sandy, and of poor light quality. . Chief produce, rye, flax, potatoes, oats, buckwheat; rape seed and wheat in a few favorable spots; clover, carrots and turnips generally. The courses adopted are those of nine and ten years. The first is, potatoes with farm dung, 2. flax with ashes and urine; 3. wheat, with ten and a half tons of manure; 4. rye and turnips, with ten tons manure; 5. oats and clover, with ten and a half tons manure; 6. clover, top dressed with 105 bushels Dutch ashes; 7. rye, with fifty-two hogsheads of urine and night soil; 8. buckwheat, without, and the only one in nine years without manure.

There are in these districts large tracts of waste lands, that will hardly pay the expense of cultivation. These are being planted with forest trees, particularly with Scotch fir and other hardy pines. Immense tracts of waste land in Europe, have been planted within the last half century, with the Scotch fir. It grows upon the most barren soil, and seems likely to give an intrinsic value to land, which would be otherwise valueless. Its growth is rapid, and the wood is convertible to many useful purposes. We consider it one of the best plants that could be introduced into our waste grounds, such for instance as the Albany Barrens, and hope the experiment of cultivating it among us will soon be made. The method of proceeding in Flanders is to burn the waste ground, and plough it in ridges of six to fifteen feet broad, or to plough it without burning—to sow the seed at the rate of six pounds the acre, and cover it by a light shovelling from the furrows, which are sunk about two feet, not only to supply covering to the beds, but as drains to carry off the surplus waters. "Extensive woods have been created in this manner, converting a barren soil into a state of production, the least expensive, the most profitable, and most ornamental. Of six years growth there exist flourishing plantations, from five to nine feet in height. At about ten years from its formation they begin to thin the wood, and continue to do so annually, with such profit by the sale, as at the end of thirty years to have it clear of every charge; a specific property being thus acquired, by industry and attention merely, without the loss of any capital. When the timber, thus planted, has been all cut off, the land has been found to yield admirable crops, from a surface soil formed by the accumulation of leaves, which have fallen for so many years. Cannot our patrons in Virginia and Maryland, and even on the western praries, profit from these hints?

In this division is grown a turnip, the *Chou-rave,* in density and saccharine matter, though not in shape, (being of an oblong form) seeming to vie with the Swede, which is much prized both for the table and for cattle.

To every cottage and farm house in Flanders is attached a garden, of some sort, well dug, manured and kept clean. The parsnip, carrot, turnip, scorzonera, cabbage, onion. leek, peas, beans, and all kinds of saladings, abound in them. Much as we hear of English cottage gardens, the author commends those of Flanders as excelling and as worthy the notice and imitation of his countrymen.

Division No. 8—Wheat soil—Silex 71; alumine 26½; oxyde of iron 2; lime ½—a strong soil, but till lately little esteemed, on account of its being flat, retentive of moisture, given to rushes, and yielding crops of corn and pasture so bad, as not to warrant a rent of $2 an acre. An enterprising farmer took a farm of this kind, and in three years improved it so far as to let it again at about $5 per acre. The improvement consisted in dividing the fields by furrows three feet wide, into distinct ridges of sixty feet wide each, and sloping them from the centre to the sides, so that the rain water would run off, and be conducted to the boundaries of the field, and from thence conveyed off. The elevation of the centre was about two feet. This operation of ridging and dressing the sides was performed with the *mouldebart,* which is constructed almost precisely like our road scrapers, and which was there worked by a man and pair of horses. The experiment succeeded admirably, and others were led to follow the practice. Lime is here used, at the rate of 150 bushels an acre at a dressing. The retentive subsoil is in some cases broke through with the plough or spade, and once broken, it never reunites, but the soil becomes dry, light and productive. The author passes great encomiums upon the Hainault scythe, an implement for cutting grain, yet found in may of our old Dutch settlements, but which has in a great measure been superseded here by the grain cradle.

Division No. 9—Rye soil—Silex 90; alumine 9¼; oxyde of iron ¾—quite sandy and unfertile; yet from the facility of obtaining manure by canals, the lands produce excellent crops of potatoes, oats, clover, flax, rye, buckwheat, rape and carrots, and also turnips. There are many flourishing plantations of the Scotch fir upon the poor lands of this district, of various ages, and extensive woods, also produced from the seeds sown upon the pared and burned surface of the waste land, which is the most certain and usual process. Some experiments made here, showed, that potatoes of a moderate size, planted whole, produced one-fifth more than large ones planted whole, and fifty per cent more than those planted by sets; also, that beets, from which the earth was drawn, were better than those which were earthed. Salt was not found to produce any benefit upon the flax crop. About twenty-five pounds of carrots are here given to each horse per day, in lieu of hay, and with oats. Buckwheat is extensively cultivated, and is chiefly applied to the feeding of swine and poultry.

Average seed in divisions 7, 8 and 9—rye 1 1-7 bushel; wheat about the same; oats 3½; buckwheat 1 1-4; flax 2½; clover 6 lbs.; turnips 5 lbs. *Average produce*—rye 35 bushels per acre; wheat 23; oats 29; buckwheat 23.

Division No. 10—Oat soil—Silex 49; alumine 48½; oxyde of iron 2½—In the heavy soils, the rotation is potatoes, wheat, flax with clover, clover, rye, oats, buckwheat, and dung, ashes, or urine, with all the crops except the last. Where sand predominates, the order of crops is rye, oats, flax with clover, clover, rye, oats, buckwheat; all dunged as the other course, except the last. Potatoes follow clover, and turnips are taken as a second crop. For potatoes the ground is dug or ploughed to the depth of twelve to sixteen inches. *Average seed*—potatoes 28 bushels; wheat 1¾ bushels; flax 2 bushels; clover 9 lbs.; rye 1½ bushels; oats 2 1-4 bushels; buckwheat 7-8 of a bushel. *Average produce*—potatoes 350 bushels; wheat 32 bushels; flax seed 7 bushels; rye 32 1-4; oats 38½; buckwheat 25 bushels. Rent about $5, taxes $2.22 per acre. Price of land about $166.

Division No. 11—Carrot soil—Silex 84; alumine 13; oxyde of iron 3—an alluvial deposit, of clay, loam and sand. The products and rotation are as follow: 1. potatoes heavily dunged; 2. wheat without manure; 3. rye and clover, with five tons of manure to the acre; 4. clover with ashes; 5. wheat or rye, with turnips as a second crop, and three and a half tons of manure; 6. oats, with four and a half tons of manure; 7. flax or hemp, with eight tons manure; 8. wheat, with turnips as a second crop, and two and a half tons of manure. In the lighter soils, rye is substituted for wheat. A striking feature in this division is the round form which is given to all the fields, originally wet and low. The compartments are in acres and half acres, and the surface made to rise gradually from the edges to the centre, so that the latter is about six feet above the level of the water courses—carrots and turnips are uniformly taken as a second crop, and the product is comparatively small, being about six tons of the former and three of the latter. Carrots are much used for milch cows, at the rate of two bushels, tops and all, to a cow in twenty-four hours. They give great product in butter, and of fine quality. The farms are from two to thirty acres. *Average seed*---wheat 2 bushels the acre; potatoes 32 bushels; rye 1½ bushels; clover 8 lbs.; oats 2½ bushels; flax nine pecks. *Average produce*---potatoes 320 bushels; wheat 20½ bushels; rye 25 bushels; clover, green for soiling, 12 3-4 tons; oats 41 bushels: flax, value of crop standing, $45 per acre. The first quality of lands sell at $200 the acre; second quality at about $135, and the third quality at about $67. A good work horse about $100---a cow $35---a sheep $3.75.

REMARKS.

From our earliest recollections of agricultural matters, Flanders has been considered proverbial for fertility; and it would seem from the examination which we have given to the work before us, that its agriculture justly merits the high character which it has acquired. And yet, with partial exceptions, the soil is not naturally *rich*---it is POOR, such as we should denominate VERY poor. It is mostly a flat, wet, cold, sandy district. Whence then its productiveness? The answer, which may be gathered from our notes, may afford useful lessons in American husbandry. Its productiveness arises,

1. From the small size of farms, and keeping them constantly in crop---no man attempting to manage more than he can manage well.
2. From a just estimate of the value of manure, the food of plants, and a judicious husbanding and application of it, frequently for years in succession to the same field. The urine, sweepings, and other animal and vegetable matters, which we waste or disregard, contribute more to the fertility of *their* soil, than all the manure we apply, does to the fertility of *our* soil.
3. From a rotation of crops, two of the same kind never following each other, found, from long experience, to be best fitted to promote the farmers' ultimate profits.
4. From the extensive introduction of clover and root crops, which ameliorate the soil, feed and fatten the farm stock, and make large returns in the form of manure.
5. From the *cutting* the forage, and *grinding* the grain, for their cattle, thereby greatly lessening the expenditure.
6. From the farmers giving their undivided attention to their farms---and from their industrious, frugal habits of living. No lumbering, no fishing, no speculation, no hankering after office.

In the work under consideration, there are other matters irrelevant to our practice, as an account of the forests which have been planted, descriptions of Flemish farm implements; and there is one sentence worth quoting entire, for the good example it holds out to us, viz: "No farmer is without a well cultivated garden, full of the best vegetables, which all appear at his own table." "A beggar is scarcely to be seen, except in the towns, and but few there." Manure is an article of commerce; and the demand for it is so great, that every material for it is sought after with avidity, and the towns and pavements are hourly resorted to, with brooms and wheelbarrows, as a source of profit, and even the chips which accumulate in the formation of wooden shoes, are made to constitute a part of the compost dung-heap. Hence the towns and farm buildings are remarkably cleanly and neat. In winter, cows receive sixty pounds of turnips, sometimes boiled, with straw, per diem.

There are also in this work, directions for cultivating and preparing for market, madder and woad, which we may hereafter copy into the Cultivator, should any one express a wish to this effect.

AN ESSAY ON GRASSES.—*(Continued from page 12.)*

SEC. II. *Lucerne---Medicago sativa, L. Diadel. Duan. L and Laguminoseœ, J.*

Lucerne is a deep rooting perennial plant, sending up numerous small and tall clover-like shoots, with blue or violet spikes of flowers. It is a native of the south of Europe, is extensively cultivated in Spain, Italy, France, Persia and Lima, in the two latter, being cut all the year round,---and is partially cultivated in Great Britain and the United States. With us it is found to be as hardy as red clover. It was extensively cultivated by the Romans, and commended by Calumella, as the choicest of all fodder. Three-quarters of an acre of it, he thinks abundantly sufficient to feed three horses during the whole year.

The soil for lucerne must be dry, friable, inclining to sand, and with a subsoil not inferior to the surface. Unless the subsoil be good, deep and dry, it is in vain to attempt to cultivate lucerne. A friable deep sandy loam is excellent for it. No land is too rich for it.

The preparation of the soil consists in deep ploughing and minute pulveriza tion. London recommends trenching for it. But a good preparation is a potato crop, heavily dressed with long manure, the ground ploughed very deep and the manure buried at the bottom of the furrow, and the crop kept perfectly free from weeds.

The season most proper for sowing in the northern and eastern states is about the first to the fifteenth of May, when the ground has become sufficiently warmed to promote quick germination.

The manner of sowing lucerne is either broadcast or in drills, and either with or without an accompanying crop. Broadcast, and a very thin crop of winter rye, is most generally preferred in the United States; though drills, by enabling the cultivator to keep out grasses and weeds, promises the greatest permanency to the crop. A gentleman who has sown in drills, three feet apart, and cultivated alternate rows of mangel wurzel with the lucerne, speaks in high commendation of the practice. Arthur Young recommends drilling at nine inches.

The quantity of seed, when the broadcast method is adopted, is from fifteen to twenty pounds; in the United States, sixteen pounds is the usual quantity,—and when drilled, eight to twelve pounds suffices. The ground should be perfectly pulverized, the seed put in with a fine harrow, and the operation of sowing finished with the roller.

The after culture of lucerne, sown broadcast, consists in harrowing, in the spring, to destroy grass and weeds; rolling, after harrowing, to smooth the soil for the scythe, and such occasional top-dressing of gypsum, ashes, or rotted manure, as the plants may require, or the conveniences of the farm best afford. The harrowing may commence the second year, and the weeds collected should always be carefully removed. In succeeding years two harrowings may be applied, one in spring and the other in the latter part of summer. If in drills, the crop must be kept clean by the hoe, drill-harrow, &c. Liquid manure from the cattle yard, is an excellent manure for this crop.

The taking of lucerne, by mowing for soiling, or hay, or by teethering, hurdling or pasturing, may be considered the same as for clover. Lucerne frequently attains a sufficient growth for the scythe from the 10th to the 20th May; and in soils that are favorable for its culture, it well be in a state of readiness for cutting in the course of a month or five weeks longer, being capable of undergoing the same operation, at nearly similar intervals of time, during the whole of the summer season. In the United States, in a good soil, it may be cut, for soiling, four, and sometimes five times, in the season.

The application of lucerne, is with us generally for the purpose of soiling, with the exception sometimes of the last cutting. It is advantageously fed in its green state to horses, cattle and hogs; but as a dry fodder, it is also capable of affording much assistance, and as an early food for ewes and lambs, may be of great value in particular cases. All agree in extolling it as food for cows, whether in a green or dried state; and is it said to be much superior to clover, both in increasing the milk and butter, and in improving its flavor. In its green state, care is necessary not to feed too much at a time, especially when moist, as cattle may become hoven or blown with it. It is a good precaution to cut it the day before it is used, and to let it wilt in the swath. When made into hay, lucerne should never be spread from the swath, but managed as directed for clover. It may be housed before it is perfectly dry, if it is alternated on the mow, with layers of straw, which imbibe the superabundant juices, and thereby become grateful and nutricious to the farm stock, when fed with the lucerne.

Soiling is a term applied to the practice of cutting herbage crops green, for feeding or fattening live stock. On all farms, under correct management, a part of this crop is cut green for the working horses, often for milch cows, even when at pasture, and, in some instances, both for growing and fattening cattle. On small farms, this crop is of immense advantage, as affording a ready substitute for pasture.

The produce of lucerne, cut three times in a season, has been stated from three to five, and even eight tons per acre. In the first volume of the Memoirs of the Society for tho promotion of Agriculture, Arts and Manufactures, in New-York, is the detail of various experiments made by the late Chancellor Livingston, with lucerne; and one of the results gives twenty-five tons of hay, at five cuttings in a season, from an acre. In soiling, one acre is sufficient for five or six cows during the soiling season. One of our farmers has kept eight cattle, two oxen and six cows, upon an acre of lucerne, during the season, with a range of three or four acres of pasture. Say, however, that the produce is equal to a full crop of red clover, in value, then, if continued yearly for nine or ten years, (its ordinary duration in a productive state) at an annual expense of harrowing and rolling, and a triennial expense of top-dressing, it will be of sufficient value to induce farmers, who have suitable soils and climates, to lay down a few acres of this crop near their homesteads.

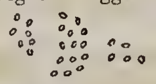
To save seed, the lucerne may be treated precisely as red clover, i. e. obtained from the second cutting, or even the third, the crop being left to ripen its seed. It is easily threshed, the grains being contained in small pods, which readily separate under the flail, threshing machine or clover mill.

THE SILK BUSINESS.—*(Concluded from page 4.)*

Having planted our trees, and got them under good way, and provided a cocoonery, let us now look for our

Eggs.—These are received densely clustered upon paper, where the parent moth has deposited them. It is well to remark here, that the product of theso eggs, is a small caterpillar, which, after undergoing several metamorphoses, becomes again a moth, or sort of butterfly. "The color of the worm, for the first eight or ten days after hatching, is an obscure black. It casts its skin at stated periods, until it has attained its largest size, when it becomes yellow. It is about three inches long when full grown, covered with scattering hairs, and has a small fleshy tubercle on the upper end of the last ring. After constructing its cocoon, which is usually about the size of a pigeon's egg, and similar in shape, it is transformed into a chrysalis, and subsequently to a moth. After remaining in the cocoon about twenty days, it forces its way out, and dies immediately after depositing its eggs, to the number of 500 or more, which are attached together by a gummy substance. The several ages of the worm amount to thirty-two days, but have been known to extend to sixty." The cut below shows the appearance of the silk worm in its different stages, and of the moth.

Fig. 10—Eggs.



11—First age.

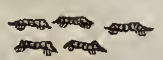


Fig. 12—Second age.

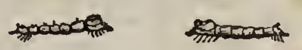


Fig. 13—Third age.

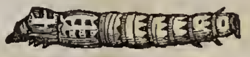


Fig. 14.—Fourth age.

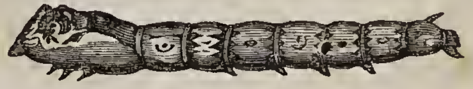
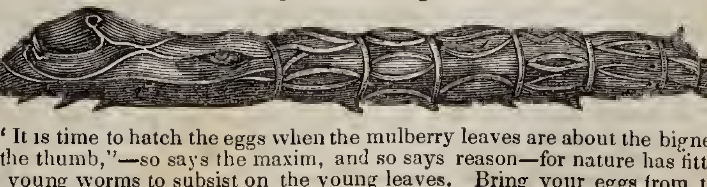


Fig. 15.—Fifth age.



"It is time to hatch the eggs when the mulberry leaves are about the bigness of the thumb,"—so says the maxim, and so says reason—for nature has fitted the young worms to subsist on the young leaves. Bring your eggs from the cellar, or wherever they have been deposited for safe keeping, and expose them to the action of tho air of the sitting-room. In a day or two, the worms will

Fig. 16.—Cocoon.

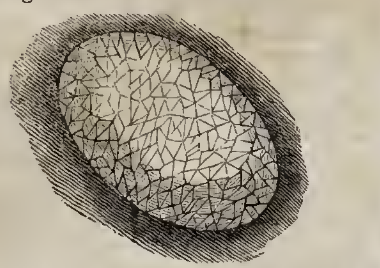
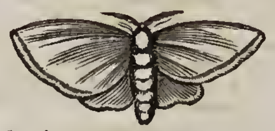


Fig. 17.—Moth.



begin to appear, and must be immediately fed with the young leaves of the mulberry, which may be laid upon them, after being chopped fine. It is best to place each day's hatching by themselves upon the shelves. They should be fed thrice a day with fresh, but dry leaves--neither wet nor wilted. To provide for wet days, pick the leaves when it is fair, and secure a supply in a glazed or other vessel in the cellar. Spread the leaves thin, and do not feed too much at a time. Particular attention must be paid to cleanliness, and the hurdles or shelves must be cleared at least after the four first moultings.

The silk-worm undergoes four changes, or moultings, at somewhat irregular periods; and in feeding them, exercise the same judgment that you would employ in feeding pigs or neat cattle—give them enough, but no more than what they seem to relish and will eat up clean. We nevertheless subjoin a brief abstract of the rules which have been laid down for regulating the quantity per day, and every day. The estimate is calculated for the product of five ounces of eggs, 175 to 200,000.

1*st day*. 3¾ lbs. leaves, chopped, in four meals, at intervals of six hours, the smallest quantity first, and increasing.
2*d*. 6 lbs. chopped, in four meals.
3*d*. 12 lbs. do. do.
4*th*. 6½ lbs.--on the alleged ground, that as the appetite increases, the food should be diminished.
5*th*. 1½ lbs. chopped. The worms are torpid, and some begin to revive. *This generally completes the first age.*
6*th*. 9 lbs. tender shoots, and 9 lbs. leaves.
7*th*. 30 lbs. leaves, four meals, the two first the smallest.
8*th*. 33 lbs. leaves, two first largest.
9*th*. 9 lbs. leaves. The worms sink into a torpor, being about to cast their skins. *This completes the second age.*
10*th*. 15 lbs. of shoots, and 15 lbs. of leaves.
11*th*. 90 lbs. leaves, two first meals the smallest.
12*th*. 97 lbs. do. three first meals most plentiful.
13*th*. 52½ lbs. do. the largest meal first.
14*th*. 27 lbs. do. and more if necessary.
15*th*. On this day, the worms arouse from their torpor, and *accomplish their third age.*
16*th*. 37½ lbs. of shoots, and 60 lbs. of leaves.
17*th*. 165 lbs. of leaves; two first meals the lightest.
18*th*. 225 lbs. do. two first the lightest.
19*th*. 255 lbs. do. the three first 75 eacb; the last 45.
20*th*. 128 lbs. do. the first the most liberal.
21*st*. 35 lbs. do.
22*d*. The worms rouse this day, and *accomplish their fourth age.*
23*d*. We find, in our books, no quantity stated for the 15th or 23d days.
24*th*. 270 lbs; the first meal 52, and the last 97 lbs.
25*th*. 420 lbs; first meal 77, the last 120 lbs.
26*th*. 540 lbs; first 120; last 150.
27*th*. 810 lbs; first 150; last 210.
28*th*. 975 lbs; the last meal the most plentiful.
29*th*. 900 lbs; the first the largest.
30*th*. 660 lbs; the largest meal first, 210 pounds, and gradually diminishing.
31*st*. 395 lbs; to be distributed as wanted.
32*d*. 240 lbs; to be given as wanted. This day tbe worms attain perfection, and prepare to wind. Some days previous to this, branches of chesnut, oak or hickory should be brought to the cocoonery, which should now be laid upon the shelves, and the worms will crawl upon them and form their cocoons.

The reason for the inequality in the daily supply of food, is owing to the moulting, when the worms become dormant, and lose their appetite in a measure. As they increase in size they must have more room allowed them, so that they are not crowded.

In gathering the cocoons, particular care must be had not to compress them, or leave any portion upon the branch. Select the largest and firmest for seed. Strip the floss from them, hang them in a warm airy room, and in two weeks the moths will emerge, copulate, and, the females being placed upon paper, as they do not fly, will deposit their eggs. One hundred females will produce an ounce of eggs, enough for 20,000 to 40,000 silk worms. In the residue of the cocoons, which are intended for silk, the worms must be stifled, which is done by exposing them three or four days to the rays of the sun, and in various other ways. After the worms are smothered, the cocoons are to be spread thin upon shelves, in an airy chamber, and turned daily, till they become perfectly dried. In transporting them to market, they should be handled carefully, and placed in tight boxes or barrels.

According to Mr. Roberts' calculation, an ounce of eggs will produce 20,000 cocoons; and fourteen ounces cocoons, one ounce eggs; 1,000 worms consume 50 lbs. leaves; nine pounds of cocoons will make about one pound of silk; 3,000 cocoons, about one pound silk, and 330 cocoons weigh one pound.

Collect the papers on which the eggs are laid, when quite dry, fold them up, and put them away in tin or other boxes, in thin layers. They should be kept dry, where they will not freeze, and where the temperature does not rise above 65°.

Ants, fowls, mice, rats, weazels, lizards, and spiders, are all enemies to the silk-worm, and must be guarded against. Bad air, that is prejudicial to man, is also hurtful to them. Hence cleanliness and a free circulation of air, when the weather will permit it, are essential.

We omit, for the present, the processes of reeling and manufacture, as none should attempt them, without personal instruction and the proper implements. Cocoons have sold for three to four dollars per bushel.

CORRESPONDENCE.

REMARKABLE LARGE CORN CROP.

Mr. Jesse Buel—It affords me pleasure to be enabled to resort to your very useful agricultural paper as a medium through which I can bear testimony to the value and importance of the soil of our little state of *Delaware*.

Little has been heretofore known, beyond its own limits, of the superior quality of the soil of the peninsula of Delaware and Maryland, and of its advantageous location; but the present age of improvement has fortunately brought within a part of our territory the public improvements of a canal, and two rail-roads, which have developed to the world the importance of our location, the beauty of our country, and the susceptibility of our soil, to the greatest extent, of production and improvement. These improvements appear also to have infused new life into our citizens, and caused a spirit of enterprise and industry which has been most beneficial to the agricultural interests of our country.

As a specimen of the capability of the soil, and the ability of the farmers in the neighborhood of St. Georges, New-Castle county, Delaware—permit me to present you with the following statement of a crop of corn raised last year by *Maj. Philip Reybold*, one of our most enterprising farmers—and one, to whom, our community are largely indebted for the impetus given to our agricultural improvements—viz:

On one field of	22	ac. he raised	2,216	bush.,	about	100¾	b. per ac.
On another field	30	,,	2,249¾	,,	,,	75	do.
On do.	27	,,	1,819	,,	,,	67¼	do.
	79	Total crop,	6,284¾	bushels,			

averaging for the whole crop of 79 acres, near 80 bushels to the acre—and all this upon a soil that was not naturally as good as a greater part of the soil of this country; and brought up, within the last ten years, from an extreme state of poverty.

I have obtained from Major Reybold a statement of the mode adopted by him, for an improvement of his land, as well as the cultivation of the crop of corn here referred to, which is as follows: On the field of 22 acres, about 7 years ago, he put 60 bushels of stone lime to the acre, and planted it in corn; in the following spring he put it in oats, and in the fall put on about 40 loads of barn yard manure to the acre, and sowed it in wheat and timothy seed, and in the ensuing spring with clover. It remained in grass until last spring, receiving an intermediate top dressing in 1833, of 40 loads of barn yard manure per acre. He mowed it for 3 or 4 successive years, and each year obtained from 2½ to 3 tons of hay per acre. Last spring he gave it another top dressing of 40 loads per acre of long manure, which was permitted to remain as long as possible, in order to give the grass a chance of starting through it. He then ploughed it up about ten inches deep, with a No. 5 concave plough, which completely covered the manure; he then gave it a stroke with the harrow along the course of the plough furrows, and then crossways, and struck it out very shoal, 3½ feet from centre to centre each way. After the corn came up, he harrowed it both ways with the fallow harrow; and from that, until the first of July, he gave it three dressings with the cultivator (fluke harrow,) first crossing the plough tracks; in 10 or 12 days, the other way, and then again the other way, being very careful not to disturb the manure by going too deep with the cultivator.—The plough was never used in the field after planting; and the corn thinned so as to leave 3 good stocks in a hill. When the corn became fit to top and blade he cut it off by the ground and put it up in shocks.

The field of 30 acres,—one half he covered with oyster shell lime, 100 bushels to the acre, and 5 acres with marl, 12 loads to the acre; and previous to planting in corn, the whole field was covered with 40 loads of long manure per acre. The produce of the ground on which the lime and marl were put, was about equal, and exceeded that of the ground which had not the benefit of the lime and marl, about 12 to 15 bushels of corn per acre, as near as he could judge. The field was planted and tilled in the same way as the one first described. In order to test the advantage of the cultivator over the plough, for tilling corn, he had 5 rows in this field that he lapped the furrow to, with a plough, previous to going over it the last time with the cultivator. He soon discovered that the growth of these 5 rows fell short, in height, of those adjacent, and yielded one-fifth less corn.

There is no doubt but the true mode of tilling corn, especially where sod ground is used, is, to plough deep, and to use nothing but the fallow and fluke harrow for its cultivation. By not disturbing the sod ploughed down, it remains there as a reservoir of moisture, and an exhilarating principle throughout the season, to the growth of the corn.

The third field of 27 acres was covered with about 30 loads of manure to the acre, in the spring of 1834, and 6 or 7 years ago, 60 bushels of stone lime, per acre, was put upon it. The planting and mode of cultivation was the same. I might here remark, that all the second, and a part of the third field, were in corn, the year before last. JAMES N. SUTTON.

St. Georges, Delaware, March 5, 1836.

Note.---The management which led to the extraordinary product of corn, should be deeply impressed upon the mind of every corn grower. 1, The ground was *well* dunged with *long* manure; 2, it was planted on a *grass ley*, with one *deep* ploughing; 3, it was well *pulverized* with the harrow; 4, the plough was *not* used in the after culture, nor the corn hilled, but the cultivator only used; 5, the sod was not disturbed, nor the manure turned to the surface; and 6, the corn was *cut at the ground* when it was fit to top. These are the points which we have repeatedly urged in treating of the culture of this crop; and their correctness is put beyond question by this notable result. The value of lime and marl are well illustrated in the second experiment.—*Conductor.*

SHEEP HUSBANDRY.—No. IV.

HINTS ON THE MANAGEMENT OF SHEEP.

I had prepared two numbers, one on wool, and one on the habits and management of sheep. Having observed the notice of the editor, that the subject of wool was anticipated, I am disposed to withhold the first, and offer the second. My object in the preceding numbers, has been to give the history of the Merino, and from "quotations" of high authority, to establish the fact, that he is a distinctive sheep, and ought to be so preserved. The further illustration of which, is marked by its longevity; the merino ewe originally sold for $1000, died in my possession at the age of 16 years, having reared a lamb the preceding summer, which was preserved. In my purchase of the flock, she was not estimated; and cost me nothing. They do not breed at so early a period as other sheep, and are less likely to produce twins. The exuberant growth of their hoofs, protruding and curving, and in some instances to the extent of 5 or 6 inches; requiring frequent paring, evidently showing that they were originally designed for domestication, or long subjected to it. I have not observed this in any other kind of sheep.

Sheep are much like birds, requiring a clear air for respiration, much exercise, frequent change of place, dry clean lodging, and nutritious aromatic feed. The (*Transhumanta*) or migrating Spanish flocks, changing situation so as always to enjoy a congenial climate, moving and grazing, must, under *good shepherds*, be most eligibly circumstanced. The similarity between birds and sheep might be greatly extended. They are both disposed by instinct to associate in flocks. Many kinds of birds migrate from north to south. Sheep in Spain are so managed. Perhaps left to themselves, they would do the same. Birds, in fine weather, ascend the most lofty branches for nocturnal repose; but in severe storms, they seek the humble lodging of the lower boughs, and the dense covert of the compact hedge. Sheep in good weather uniformly select the dryest and most elevated bed for nightly repose; severe winds greatly annoy them, and drive them into the placid valley. Birds shut up in a cage soon die; sheep shut up in a pen soon die.

Some years ago I committed a great error, and perhaps on examination, it would not be left solitary. Having assumed the opinion of the similarity of sheep and deer, I proceeded confidently on the operation. Put sheep, said I, where deer range, and they must do well—passing over the practical consideration, that fences present no impediment to a deer; he roves and selects at pleasure.—Fences are an insurmountable barrier to a sheep. From 28 to 30 sheep of almost any description, having an extensive range, will do well. It is the sheep best suited for domestication, and the best domestic management, that interests the practical farmer. I have seen the exemplification of associating common or native sheep, in large flocks, in yard accommodations; and they did not endure confinement so well as the merino, who has for generations and centuries been subjected to restrictive management. That sheep are profitable farm stock, on suitable land, and under good management, is acceded,—but that sheep ill managed, or on unsuitable soil, are profitable, is an absurdity. "What the man is worth, the land is worth." What the shepherd is worth, the sheep are worth.

The pasture for sheep should be high, dry, warm land, the more disposed to the production of aromatic plants, the better. Altitude, alone, is not enough. Some high lands are springy and wet, which is deadly and ruinous to sheep. Sheep, when confined in common pastures, are continually roving and traversing it, which soon renders the unconsumed grass foul, and impedes its growth. From their social habits, having selected their lodging, they are exceeding tenacious of their resting place, which soon becomes offensive and unhealthy. They should therefore always be changed from one enclosure to another, as often as once a week, or at most, once a fortnight, that the grass may be washed by rains and dews, and the sheep be furnished with clean lodging. In the interim, the grass can grow undisturbed, and is fresh. In this way I have been able to sustain in good health a greater number than to give them the whole range at once. No more than a hundred sheep should be kept in one flock. Sheep should have access to clean running water, through the whole year, for health, the secretion of milk, and growth of wool. In winter, they should be daily watered, which prevents their drinking too much at once, and is absolutely requisite when fed on dry hay. I think the autumnal change from the succulent grass of the fields, to dry hay, adverse to the health of sheep, the growth of lambs, and the growth of wool. Sheep cannot sustain any sudden or great change, without injury. Sheep should be fed at regular periods in the winter, and likewise have regular gentle exercise, to circulate the blood, invigorate the system, so as to enable them to resist the cold. It gives them an appetite, and facilitates the digestion of the food. Being a ruminating animal, they should be allowed quiet for this office.

I make it a daily practice to have my sheep and lambs, during winter, driven a considerable distance, and watered, fed in racks, both for economy of fodder, and the benefit of the sheep. If fed for a short time on the snow, a new place should be every time selected, and the hay distributed over a large extent of surface;—sheep fed around a stack or in a yard, the hay thrown out in bunches, to be trampled under foot in mud or dung, the sheep without water or exercise, cannot do well.

My sheep are Saxony and Spanish merinos; they are divided into flocks of a hundred each. They have been fed on early mown clover hay. I have now, 7th March, the same number with which I commenced the winter; having lost one old ewe and gained one lamb. (This has been an unusually severe winter.)

The two best flocks of fine sheep I ever knew, for health, amount of wool, and great increase, were managed as follows, viz:—the first, with which I was intimately acquainted for ten years, seeing them during this term as often as once a week: this flock was liberally fed in the winter on carrots; they were uniformly in high flesh and high health, their udders distended with milk, rearing nearly all their lambs, and yielding an abundant fleece. If I do not mistake, this flock gave of washed wool, ewes 5 lb., lambs from 3 to 4 lbs.

The second flock was one in which the proprietor practised feeding grain. After the injury of the grass, by one or two severe frosts, he commenced with feeding, at the rate of half a gill of Indian corn, per sheep, daily; this was gradually increased to a gill, through the winter. These sheep were fat, and yielded great fleeces.

Beans, corn and peas, are the best grain for sheep, yet they are more heating and feverish, and not so well adapted to the secretion of milk, as vegetables, of which carrots are decidedly preferable. The kind of vegetable to be produced must be adapted to the soil, to render it profitable.

Sheep should be well looked after in summer and autumn; they must come to the barn in good condition, or they will not winter without more care and cost than they are worth. Most persons, who keep sheep, increase their number beyond their means of subsistence. I can produce more wool, and rear more lambs from 300 sheep well fed, than from 400 under ordinary management. I think very few are aware of the necessity of sufficient feed and care, for domestic stock; I do not mean high feed; that belongs to the staller.

It is a common opinion, and seems a natural inference, that sheep are so clothed with wool, that they must be warm, and better able to resist cold than other animals. But the fact is otherwise. They are exceedingly sensitive to cold and wind. This arises from two causes. First, the extreme delicacy of their skin. The picking of sheep and the picking of fowls will exemplify this. Then observe the thickness of the skin of the horse and the ox. Secondly, the vigor of circulation; sheep are throughout a delicate animal, and we have the authority of the most experienced shepherds, in saying, that "most of the diseases of sheep are the consequence of debility."

I am compelled from experience and observation to dissent from the opinion and practice of some of our best managers of sheep, in relation to sheds and shelter; that is, having sheds in the sheep pasture and yard, at all times accessible to the sheep, and subject to their discretion, and that they will not resort to them only when necessary. This I have found otherwise. They will resort to them as an indulgence, which soon grows into an established habit; the shed becomes excessively foul, the confined breath and effluvia pestilential; the sheep acquire a disinclination to motion, and snuffly, from the great warmth and excess of perspiration, operating like a warm bath, are soon debilitated and lose their appetite.

It is indispensable in the domestic management of sheep, to be liberally furnished with sheds, which should be located on dry elevated knolls, constructed on a broad scale, spacious, elevated, airy; and at the same time, *plain and cheap.* These should be forbidden resorts, except in severe storms, severe winds, and during the lambing period, and after shearing. Thousands of lambs are lost for the want of one night's shelter. Thousands of sheep are destroyed by constant shelter.

Lambs should be separated from old sheep. Feeble and old sheep separated from the rugged.

The quantity of fleece may be surprisingly increased by feed, which is exemplified in cossets or pet sheep. The highest attainable improvement in the merino is effected by attention to purity of blood and selection; more particularly of the buck, for his excellencies or imperfections, if hereditary, exercise an extensive influence. He should at any rate be of pure blood, and round in form, with thick, fine, glossy, elastic wool, if attainable. The size of sheep constituting a flock, may be improved by the judicious selection of breeding ewes. None but those of good size, good nurses, and of proper age, should be permitted to breed. The flat sided, bad nurses, thin wooled, should be excluded. In large flocks, merino ewes ought not to be permitted to produce a lamb until the third year, otherwise the dam is diminished in size, deficient in milk, the offspring feeble and puny, and calculated to deteriorate the flock. Nursing ewes should be kept so as to preserve the lamb unchecked in growth. This is the way to increase the size of sheep. F.

Note.—We regret to perceive, by a private note which accompanied this communication, that our valued but unknown correspondent, has misapprehended the object of some of our remarks, and the cause of our not inserting his last No. in our February Cultivator. Our remarks were not intended to have reference to *any* correspondent, and his communication reached us, to use a printer's term, *after* our columns were closed.

PLASTER BEDS OF THE WEST.

Mr. Buel—In my last communication, I endeavored to give some general information respecting the quantity of plaster of Paris, or gypsum, quarried, as well as of that consumed in the western part of this state. As I had to speak from information, derived in many cases from hearsay, I have in all probability (in my endeavor to be perfectly within bounds in my statements) much underrated the consumption in this quarter of the state.

Perhaps it may not be uninteresting to your readers, or devoid of useful results, to mention a few of the geological indications which are exhibited in the vicinity of the plaster beds, as well as those which accompany them.

In the vicinity of plaster of Paris or gypsum, is generally found common carbonate of lime, and often hydraulic cement or water lime. This is the case in Madison county, and likewise on Seneca river, in Seneca county, near this place. In the latter place, and in Cayuga county, the gypsum rock is sometimes found in a solid body, from ten to twenty-five feet in thickness, extending for an unknown distance, in beds underneath the soil, from three to six feet. Immediately above the gypsum is often a strata of slaty silicious limestone, which on exposure to the weather, crumbles and breaks to pieces. The soil upon the surface, over the beds, is sometimes a red clay, mixed with limestone, gravel, and sometimes a sandy loam. The plaster is not unfrequently found in the shape of a cone, or a single rock; but in such case more extensive beds are usually to be found in the neighborhood. Sometimes it occurs in laminæ of from one to three feet in depth, with veins of earth or limestone between; but this is most generally the appearance of the beds at their mouth, or where they are first opened. The rock becomes more solid and of greater depth the farther the quarries are explored. Where the granular or amorphous gypsum is found, (which is the description to which almost all that is *used* belongs) in strata, of two, three and four feet in thickness, efflorescences of gypsum are found generally encrusting the different strata. In almost all the rocks on the Seneca river, and in those from the Cayuga and Phelp's beds, are found thin veins, a half an inch to three or more inches apart, of crystallized gypsum, or what the mineralogists term selenite.

In the Medical Repository, vol. 13, p. 77, is the following analysis of the Onondaga plaster, into its constituent parts. The Onondaga plaster resembles in color, appearance and specific gravity, that from the beds of the Seneca river and Phelps, Ontario county. One hundred grains of the Onondaga plaster, was found to contain 47 parts sulphuric acid, 32 of lime, and 21 of water. And judging from appearances, these are probably nearly the proportions in which the constituent parts of all our gypsum in western New-York are combined. There are some beds of plaster in Cayuga county, which afford a dark blueish specimen, sometimes almost black. This is owing to the presence of argillaceous matter, which gives it likewise a fœtid smell. It is probable that this variety does not contain so much sulphuric acid or lime, as those gray and lighter colored plaster rocks, which are destitute of that fœtid odour, which invariably denotes the presence of argil.

As to all practical purposes for manure, there is no difference between the gypsum of western New-York; though some of our farmers entertain preferences, (according as they have been in the habit of using the gypsum from some particular bed,) in favor of one kind, and some of another. I have known the gray and the blue plaster to be sowed side by side, in a great many instances, for the purpose of experiment, and on all varieties of soil, and the results were invariably the same; and indeed, must always be, as the component parts *as to all practical purposes*, are the same. But *quere*, whether that plaster containing *argil*, is as good on *clay* lands, as that which is without it? also, whether it is not better on sandy lands?

The gypsum of western New-York, wherever it appears, is a portion of one vast bed or strata, which extends from Oneida county to the Genesee river, and reappears again in Canada and in Ohio; and I am informed, likewise in the northwest part of Michigan. This strata is of various depths beneath the surface at different places, sometimes upon or near the surface, at other times thirty or forty feet beneath it. This strata does not appear to be of great width. All the beds of gypsum yet discovered in this state, are not forty miles distant from the Erie canal. I believe they are generally south of it.

Mineralogists tell us, that gypsum is found "abundantly overlaying rock salt deposites." I have not heard of salt in this vicinity, though salt has been manufactured from springs at Montezuma, distant about seven miles from the beds in this neighborhood.

Until very recently, the value of the lands upon which these beds of gypsum are found, has not been appreciated. Within the past year, I have known land of first quality for farming, containing extensive beds of plaster, sold for less than $50 per acre, which is the common price for good farming lands in this vicinity. Considering the few quarries which have, as yet, been discovered of this valuable mineral, and its increasing consumption, a rapid appreciation of their value in this country may be anticipated.

Seneca-Falls, February 27, 1836. S. J. B.

P. S. Would not the state be the gainer in a pecuniary point of view, by entirely abolishing all tolls upon the transportation of gypsum and other manures?

SHEEP HUSBANDRY—IMPORTANCE OF HOUSING FLOCKS—RAVAGES OF THE WHEAT WORM.

Judge Buel—Sir—I have taken the first and second volumes of the Cultivator, and can truly say, that I have taken much pleasure and satisfaction in the perusal; besides having been, already, more than ten times remunerated for the expense, in a pecuniary point of view, into the bargain. Feeling an anxious desire for its continuance and prosperity, I have procured twelve subscribers for the third volume, and send you enclosed six dollars.

The communication of your correspondent, L. F. Allen, Esq., on farm buildings, and the management of farm stock, &c., in the eleventh number of the second volume, I very highly appreciate, and commend it to the careful perusal of every reader of the Cultivator. He says, "if I cut fifty tons of hay, and, by exposure in stacks to the weather, only forty of it can be eaten by the cattle, and one-quarter part of that even is trampled under foot, I had better have had only thirty tons of good hay in my barn, and even then my stock would have consumed five tons less by being warmly housed for the winter. This is a view of the case which I think must strike every thinking mind, and will apply itself to every domestic animal on the farm. To my own mind it has been most strikingly presented by a year's experience, and I am of opinion that the difference in the consumption of food, for the domestic stock of a farm, taking in all the losses incident to the forage itself by want of housing, &c., is at least thirty per cent, compared with the most economical method of expending it; and in some cases even forty or fifty!" In speaking of his present management and manner of feeding, he says, "I well know that they consume less food per head by thirty per cent, than they did during the last winter, when they were fed nearly, if not quite equal, to the ordinary method practised throughout the country. Our oxen, I am satisfied, perform more labor, the cows yield more milk, and all the animals consume less food by being thus housed and attended." Is not this then a subject worthy the careful consideration of every farmer? I think it is; and from more than twenty years' experience in housing and feeding cattle in mangers, if any thing was wanting in corroboration of his testimony, to induce farmers to try it, I would cheerfully add mine. Instead of tying them in stalls, however, I have substituted gates between each one, the advantages of which are, they are more easily, and in less time, put up and turned out, and are not so liable to injure themselves, and cannot possibly injure others, as they sometimes do, by getting loose, when tied.

For eight winters past, including the present, I have kept from 100 to 180 sheep—merinos crossed with Saxony—which I have also fed under cover, and am not sensible that it has had a tendency either to diminish their appetites, or injure their constitutions, in the least; but am satisfied that the preservation of their health requires this indulgence, and nature prompts to it. In the language of an able writer, I would ask, "if they have the choice, do they remain in the open air in a storm?" From eight years' experience, I know they do not—"they as instinctively run to their covering as a man does to his house, and if they do not require it quite as much, they appear as grateful for the shelter. For a flock of poor sheep, a protection from the weather is very important. Those in good condition do not so much want it, as they have a better coat, both of flesh and wool; but for them it is likewise useful." In giving an account of the management of my flock, for several years past, I cannot do it better, perhaps, than by adopting, in a great measure, the language of an able correspondent in the first volume of the Cultivator. Generally by the 20th of November, (sometimes earlier,) I separate my flock in the following manner: In one yard I put my last spring lambs; in another I put my yearling ewes and wethers; in a third my elder ewes, and in the fourth my wethers, where they are kept and fed during the winter. This arrangement I consider highly important. They are now nearly of a size in each yard, and by being so, there are no strong ones among them to drive the weaker from their fodder, but all will feed alike and do well. I usually feed three times a day, rather sparingly than sumptuously, with good hay, and occasionally give to one or more of my flocks, as I think they require it, a few oats, a little corn, or potatoes. If my hay has not been salted, I allow salt constantly to lie in their troughs, that they may lick it at pleasure. Water I also consider almost indispensably necessary, while feeding on dry hay, and therefore allow it to each of my flocks, if possible. Many, I believe, die for the want of it. I have sometimes, likewise, had a fifth, or hospital yard, for my old and poor sheep, (if I had any,) and if there were any in either flock that did not subsequently do well, they were removed into this yard, where, by being few in number, and having a good warm shed, well littered, and a little better feed and attention paid to them, they generally soon began to improve and do well. I have, sometimes, actually had my hospital sheep in a better condition, with this care, by spring, than any other flock. I have, however, now and then, lost one, either by casualty or old age; and in the winter and spring of 1832, I lost sixteen with the grub or maggot in the head, which baffled all my skill and care. I tried many experiments, such as blowing scotch snuff up their nostrils with a quill, and injecting snuff and vinegar up their nostrils with a syringe; also, French brandy, asafœtida, dissolved in water, the strong juice of tobacco, and spirits of turpentine; but was not successful with any, as every sheep that was taken died. I therefore know of no certain remedy for this disease, but am satisfied, from experience, that a case will rarely occur if sheep are kept in good condition, and their noses are well tarred as often as once in three or four weeks, during the months of June, July, August and September. For the want of a little care and trouble, at this season of the year, many large flocks are almost entirely destroyed the following winter, while their owners blame their bad luck, but not their bad management. Sheep, to do well through the winter, must be in good condition when they begin it. If they are so, they pass through it without difficulty; but if they are poor at that season, good provender and a regular supply of it, will hardly ensure them well through. To take good care of our sheep, then, during the summer and fall, is highly important to the farmer, which will be to him a great saving, both in sheep and fodder. To permit them to ramble over our fields in the fall, after the hard frosts of October and November have destroyed the nutritious qualities of the grass, and until they are driven in by cold and snow, as too many farmers do, is to my mind, poor economy indeed! and if they, generally, were aware of the prejudical effects of such a practice, both to the sheep and to their own interests, would they not be willing to profit by the wisdom and experience of their neighbors? and bring up their sheep earlier into winter quarters, where they can be better fed, before they begin to fail in flesh.

To demonstrate to the satisfaction of the inexperienced, the advantages of feeding sheep in winter under cover, in barns or sheds, I will add, that in the winter of 1825-6, I fed fifty-seven sheep (my entire flock,) in the open air, in yards, from racks, and in June following, sheared from the same 163¾ pounds of wool, averaging 2 pounds 14 ounces per head. In 1826-7, I fed eighty-four in the same manner, and in June following, sheared 225 pounds 10 ounces of wool from the same, averaging only 2 pounds 11 ounces per head. The next winter my flock (101) were fed in the same manner, and in June I sheared 279½ pounds of wool from them, averaging 2 pounds 12 ounces per head. But from three years' experience, and close observation, I was led to doubt the utility of feeding sheep on the ground, or in racks in the open air, in winter, and in the summer of 1828, I built me a barn for their particular accommodation, and have since fed my entire flock under cover, to my entire satisfaction.

In June,	1829,	from 105,	I sheared	313lb.	averaging a trifle less than 3lb. pr hd.			
"	1830,	" 92,	"	293¾lb.	averaging	3lb.	2½oz.	per head.
"	1831,	" 114,	"	425	do.	3	11¾	do.
"	1832,	" 125,	"	396	do.	3	2¾	do.
"	1833,	" 103,	"	348	do.	3	6	do.
"	1834,	" 130,	"	462	do.	3	8	do.
"	1835,	" 166,	"	521	do.	3	2¼	do.

From the above it will readily appear at a glance, that at every shearing since I have fed under cover, my flock have produced, upon an average, from two ounces to one pound more wool per head, than when fed in the open air; and I verily believe that I have saved, at least, 25 per cent in fodder, besides a great number of sheep and lambs. Every farmer knows, that by foddering sheep on the ground, or in racks, especially in the fall and spring, and in rainy weather, much of the hay is wet, trampled under their feet and wasted. But here, in a barn, or under a shed, it is perfectly dry; and if not eaten, is not destroyed. By carrying it into the yard, other stock will readily eat what is left by the sheep. Here, also, they are exempt from the cold and wet storms in the spring that are so deleterious to their health—especially to old and very poor sheep, and to ewes with lamb. I have, I believe, three or four seasons, within seven years, reared from forty-five to fifty lambs in a season, without losing one. My actual sales of wool and sheep for eight years past, amount to $1,703.13, and the increase of my flock is now worth three hundred dollars more. In conclusion, I would say to my brother farmers, "go thou and do likewise." I must desist from giving a plan and description of my barn, for the want of room.

And now, sir, if you think any of the foregoing is worth puplishing, you are at liberty to do it, after making the necessary corrections, &c. Respectfully yours,

ROBERT MILLARD.

P. S. The wheat crop in this section of the state, has been more or less injured, I believe, for twelve years past, by what is here called "insects in the head." "These insects or maggots prey upon the kernel while growing in the field, and before the grain has become hard." In 1824 I had a field, containing five or six acres, about half destroyed, and subsequently, for four or five years, my entire crop was destroyed. In 1830 I abandoned the idea of trying to raise wheat here, and have not since sown any. A neighbor of mine wishes me to say, however, that for two years past he has raised fine crops of spring wheat, by sowing his seed the 1st of June. Not an insect or maggot was to be found in either crop.

Hampton, Washington Co. N.Y. Feb. 27, 1836. R. M.

MERINO SHEEP.

Mr. Buel—I observed, in your last Cultivator, some remarks upon the emigrant merino, particularly the Ramboulet, imported by Robert R. Livingstou, Esq., in 1802. Perhaps it would be interesting to some of your numerous readers to know that that breed of sheep is still preserved by the family of that gentleman. Understanding this to be the fact, I visited, last summer, the estate of Robert L. Livingston, Esq., who resides upon the old domain of the late Chancellor Livingston, in the town of Clermont, Columbia county, and there found a beautiful flock of merinos, bearing the characteristic marks of that sheep; and although Mr. Livingston, at present, wishes to increase his flock, he, with the liberality for which he is so justly esteemed, generously permitted me to select a few to commence another pure flock; he informed me, that since the chancellor's death he has continued to breed in-and-in. The Hon. Edward P. Livingston, who also inherited a part of the chancellor's flock, has likewise done the same, I am informed.

Since I am upon the subject of sheep, I will observe, that the vines of the field bean, with the pods and husks, after the beans are threshed, are excellent feed for sheep. I make this remark because I have seen in some paper, bean vines condemned as useless; and, likewise, upon travelling this fall, a little below the city of Hudson, a large quantity carted into the road and left but to rot upon the ground. Facts are stubborn things. Some years ago I raised two or three acres of the common field or white bean; the straw, or vines, after threshing, I laid away for my sheep, and confined a small flock of them to that kind of fodder entirely, having enough to feed them the most of the winter, and although, after my vines were gone, I fed them with the best of hay, they lost flesh. They will eat all the vines except the woody part.

Yours, respectfully, NATHAN BECKWITH.

Red-Hook, January 29, 1836.

CURE FOR THE FOOT ROT IN SHEEP.

The foot rot is an ulceration proceeding from innoculation only, which tends to destroy the hoof; it is most prevalent in low, wet pastures. The rot is so powerful in warm, moist weather, that the ulcerous matter may be discovered within three days after the exposure. The great and first point of cure is, to pare off all the infected part of the hoof, so as to expose the least particle of infection, which must be removed: then apply a strong decoction of pulverized blue vitriol, dissolved in water, adding, as used, spirits of turpentine; let them remain in a dry yard a few hours. In all cases, it is of great importance to separate the diseased animals from the flock, and range in dry pastures. When the disease has not been long seated, nor, in a manner confirmed, after cleaning the foot, and paring away the infected parts, the application of spirits of turpentine, or a mixture of oil of vitriol, one part with two of water, then dipping it in boiling tar, is an effectual remedy. In the winter, the animal may be infected, and yet you cannot discover any lameness; it is, in this season, too often neglected; if so, when warm weather approaches, it rages again. The best time to cure the foot rot, is cold weather; freezing destroys the ulcerous matter, similar to the infection of small-pox—after freezing, it will not take effect. It is highly necessary to examine them every week until cured, which will require three or four thorough examinations, where the ulceration is confirmed.

Waybridge, Vt., Feb. 29, 1836. S. W. JEWETT.

ON THE MANAGEMENT OF PASTURE GROUNDS.

J. Buel, Esq.—Sir—You will confer a favor upon one of your subscribers, and probably gratify many of the patrons of the Cultivator, by giving some information relating to the fodder or forage for the stock of the wool grower and the dairyman. These two branches of farming are yearly becoming of more importance, and the most expensive part of which is the wintering of cows and sheep. Your views, sir, with regard to the application of our common barnyard manure to meadows, and such land as is not suitable for ploughing—whether in a coarse unfermented state, and applied in the spring or to remain in the yard, and be allowed to ferment through the summer, and applied in the fall, would probably be read with interest. I am aware, sir, that your general mode of manuring land with unfermented manure, is by ploughing it in; but, sir, there are instances where it would be attended with great loss to the farmer, to dispose of his stock, or even a part of it, for the purpose of manuring his meadows in this manner, and it would also require a number of years to accomplish it. I also claim that there is much land in our country, which for various reasons, is totally unfit for the plough, after a smooth surface has been obtained. I should likewise be pleased to read your views relating to the various species of grass, suitable for hay and pasture; but very few of our farmers use but two kinds for seeding their lands, viz: herdsgrass and clover. I have seen the following advertised, and I presume many of our farmers are unacquainted with their value, and the proper soils to which they are adapted, &c., viz: white Dutch clover, common white clover, crimson clover, lucerne, Italian rye grass, Pacy grass, perennial grass, prairie grass, orchard grass, red top, Rhode Island bent. To such wool growers and dairymen whose lands are not suitable for ploughing, the introduction of a species of grass of a more durable nature, than herds grass and common clover, would be important.

If you are disposed, sir, to give your views relating to the above, they will undoubtedly be read with interest in the Cultivator.

Very truly yours, &c.

February, 1836. A DAIRYMAN.

REMARKS.

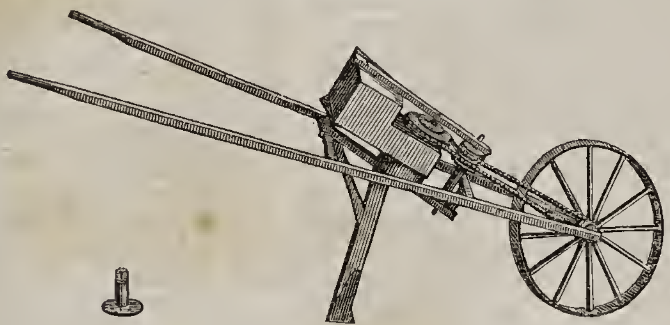
Our correspondent's queries relate principally to *old grass grounds.* We confess we have had so little experience in this matter, that our answers must be drawn altogether from theory. The deterioration of grasses arises from one or two causes—1. the diminution of the more nutritious herbage, in consequence of the exhaustion of their specific food, & the introduction, in its place, of mosses, and coarse herbage; or, 2. the existence of too much water in the soil, or reposing upon a tenacious subsoil, which causes the sole of the sod to be poached by cattles' hoofs, and which encourages the growth of semi-aquatic and innutritious plants. The means of remedying the latter evil is drainage, which may be as advantageous to pasture, as it is to arable or meadow land. The other evil can only be remedied by a change of grasses, or an artificial supply of the specific manure required by those which ought to occupy the ground. New grasses can be introduced by sowing seeds in spring or fall, and scarifying the sod well with the harrow or scarifier; and if short or compost manure can be spared, it should be done before the scarifying takes place. In this way the mosses will be in a manner extirpated, the surface mellowed, and the seeds covered. An application of lime to the surface, at the rate of ten or a dozen bushels the acre, annually, or once in two or three years, would probably be highly beneficial, by assisting to decompose the dry vegetable matter upon the surface, destroying mosses, and rendering the surface more permeable and retentive of moisture. Marl would almost invariably be a good top-dressing. Gypsum, at the rate of a bushel annually per acre, sown as soon as the snow has disappeared, would undoubtedly benefit all light or dry soils, far more than the expense of buying and applying it. And in many cases a top-dressing of leached ashes would be beneficial. These materials, together with dung, would supply to the soil, the specific food required; and the latter, I should prefer to apply in its unfermented state, in autumn; because it becomes saturated and leached by the snows and rains, and partially decomposed before the grasses start in the spring, and tends more to keep the surface moist during the summer, than short dung, and because it must afford more nutriment to the grasses. Dung wastes much more when fermented in large heaps, than when fermentation goes on in small parcels, or when spread upon a sod.

The article which we have commenced in the first number upon grasses, will afford most of the information desired, as to the relative value of species. It may, however, be proper here to remark, that the Dutch and the common white clovers are the same; that crimson clover and Italian rye grass are believed to be too tender for our winters, that Pacy and perennial grasses are varieties of rye grass, which are not yet found to succeed well here, on account of the heat and dryness of our summers—and that lucerne is adapted for soiling, rather than pasture. The orchard grass, tall meadow oat and herds grass, (red and white top,) are believed to be among the most abiding, and best adapted for perennial pastures—herds grass and timothy for meadows.

If land is, however, well drained, it may most generally be subjected to the plough, and a year or two of tillage will improve it more for pasture than any topocal application. Improvement of pasture lands is the last thing that engages a farmer's attention. The impression is that they are either not worth improving, or that they are not susceptible of it; when in fact they concern him nearly as much as the meadow or plough land. They make the meat, the wool, the butter and the cheese, more than the meadows do.

ROBBINS' CORN PLANTER.

Fig. 18.



MR. BUEL—SIR—Having been applied to by letter, from various sources, for a description of "Robbins' Corn Planter and Drill Barrow," and answers to the following questions solicited, I have concluded, with your permission, to reply through the medium of the Cultivator, should you deem them of sufficient importance to occupy a small space in one of your columns.

Question 1st. "Is Robbins' machine complicated, and liable to get out of repair?" *Answer.* At first view, it would appear rather complicated; but on further inspection and a trial, the complication ceases, and it becomes very simple. There is, however, but one way of placing the band on the pulley, for that must be turned with the sun; *i. e.*, the band should pass from the top of the nave or hub of the large wheel, to the left side of the pully or whir. Particular attention should be paid to this, as, by placing it the opposite way, the wire spring in the small circular box might be injured. The band is shortened or lengthened by twisting or untwisting. The speed may be accelerated or retarded by placing the band on the larger or smaller groove on the nave and whir. By increasing the motion of the droppers, the seed will drop faster, and, of course, nearer together.

2d. "What and how many kinds of seeds will it sow?" *Ans.* It has six droppers, with different sized holes, and will plant corn, beans, peas, broom-corn, beets, mangel wurzel, turneps, teazles, onions, carrots, mulberry, and all kinds of round or oval seed not larger than corn or beans, with more system and correctness than can be done in the usual manner of planting with the hand and hoe. One man may easily put in five acres in a day, placing the seeds any given distance apart, from two or more inches, and in rows two and an half feet apart one way, and the rows at such distances as may be deemed best. In drills, one or more seeds may be dropped, at eight inches asunder.

3d. "Is it drawn by a horse?" No—it is pushed by a man or boy, like a wheel-barrow, but it is much smaller and lighter.

4th. "Will it answer for planting corn in hills of equal distances, in squares, over a large field?" Yes, it will plant corn in hills, dropping from three to four kernels at a time, two and an half feet apart; and, by a little experience and attention, being particular on starting the rows, the hills may be placed at right angles and at equal distances.

5th. "Will it regulate and drop any required number of seeds?" Yes, by using larger or smaller sized droppers.

6th. "What is the price?" Fifteen dollars.

To plant one acre of ruta baga, the rows twenty-seven inches apart, and the seeds in the drill one inch apart, only from four to six ounces of seed is required.

In a letter from a gentleman who has had one of these machines in use for several years, I find the following observation, which I have taken the liberty of transcribing:—

"The corn I planted with Robbins' machine, last season, on my farm, exceeded that planted with the hoe, by the acre, at *least fifteen bushels*, under circumstances equally favorable, as to soil and cultivation. And I have conversed recently with a number of gentlemen who have used the machine, and tried some experiments, and find that the result has been in favor of the machine in all cases, they think, *not less* than *ten* bushels."

Such is the description and character of "Robbins' Corn Planter and Drill Barrow," and I know of nothing wanting to make it perfect, except a roller, which I consider of very essential service to cover and press the earth on to the seed, which causes a more rapid vegetation. The roller may be attached by an additional expense of two dollars.

The above machines may be obtained at the seed store of WM. THORBURN, No. 347 North Market-street, and of the subscriber, No. 80 State-street, Albany.

Albany, March, 1836. C. N. BEMENT.

Coeymans, March 15, 1836.

FOR THE CURE OF THE BOTS IN HORSES—Give them alum of the size of a small butternut, either pulverized in their feed or dissolved, and poured down when dangerous, and there is no doubt of an absolute cure. It should be given once a month, and they will never have bots. I learned it from a Pennsylvania German, and have practised it nearly twenty years with effect.

STEPHEN HAINES.

HINTS ON GRAFTING.

J. BUEL, ESQ.—If you deem the following hints on grafting of any practical utility, they are at your service, the whole, or any part of them.

The method which I have practised, with excellent success, for eight years past, is as follows. I cut my cions as late in April as they can be, before the buds begin to swell, and keep them with the but ends in the earth, in a damp cellar. When the season commences for setting, which is as soon as the leaves begin to start, I set my grafts. I use a composition of two parts rosin, one of beeswax, and one of tallow, melted in a small kettle, and applied hot, with a small brush, which any one can make in five minutes, nicely painting over the end of the branch cut off, so as to cover the split, and prevent the air or wet from getting in. By this method, one can set much faster than in the usual way of applying the composition cold—it requires less of it, and of apples or pears, not more than from five to ten per cent need be lost. On other fruits I have not had much experience, but from what I have, believe it will succeed equally well. Respectfully,

LEVI HOPKINS.

Mentz, March 8, 1836.

[The following Report of the Corresponding Secretary of the State Agricultural Society, came to hand too late for its place in our last.]

The corresponding secretary of the agricultural society of the state of New-York, begs leave to report, that since the last meeting of the society, he has received no communications on the subject of agriculture of sufficient interest to lay before this meeting. The establishment of papers having for their express object the diffusion of information on the different branches of husbandry, and their extensive circulation, has, in a measure, superseded the necessity of corresponding with the secretary of this society. Many gentlemen now send their communications through those papers immediately to the public, which is probably the best disposition of them that can be made, inasmuch as they are of public interest, all who wish to be benefitted may peruse them at an early day. Although he is happy to perceive and be informed that communications through these channels are becoming both more numerous and interesting, yet he would still, in behalf of the society, solicit a correspondence on subjects connected with its objects, with gentlemen who may be disposed to favor him with their communications, in the hope that these communications might tend to give more interest to our annual meetings. So far as at this time as this is a subject of regret, it may, perhaps, be construed into an evidence that this society does not so fully meet the expectations of its friends and supporters, as could be wished, or that the public feel indifferent to its complete success. Still with this discouragement, after the labors of three years to extend its usefulness, he trusts that we will by no means abandon our design, or falter for a moment in our efforts fully to carry out the contemplated objects of this necessary, and, let me add, noble institution. At the time of its organization, it commenced under many discouraging circumstances. The former state society had not only dissolved, and the county societies followed in its train, but there existed an apathy upon the subject of agriculture, and a repugnance to the new organization of similar societies, from the circumstance that all had failed. The causes of this failure it is now useless to recount; it is enough so say, that the public had to be awakened once more to the subject of agricultural improvement, to the necessity of concert of action, together with a vigorous use of every means to effect this object. The establishment of agricultural newspapers in different portions of the state, has, perhaps, done more than any other means to bring about a change in public opinion; and what contributed essentially likewise to aid the friends of agriculture, was, that as all other classes of society were using extra efforts for their special advancement, the farmer found that his calling would fall into merited contempt without corresponding efforts were made on his part. Partial as were those efforts, and wanting, as a body, the farmers still are in the *esprit de corps*, a spirit so important to complete success in the various departments of human industry, still we feel that something has been done, but not as much as might have been wished or even expected. In consequence of these efforts, however, we have seen, within a few years, an improvement in the appearance of farmers generally—the houses are better, the fences better, the lands more carefully tilled, and useless weeds and bushes oftener destroyed. The fields look cleaner; draining, so essential in some soils, and before hardly thought of, is coming into extensive use; the herds of cattle are oftener improved by the mixture with the imported breeds, they are better kept, and are decidedly becoming more valuable. The breed of hogs is more attended to, the fattening of them conducted in a much more economical manner. The improvement of horses has not been so manifest, but that of sheep has been decidedly so—much more numerous flocks are kept, and both mutton and wool have increased in quantity and improved in quality; large flocks of sheep are now profitably fed where but few formerly were permitted to roam, and thousands of dollars are now received for wool, where once it was not thought practicable to obtain hundreds under any possible change of circumstances. The subject of manures has undergone interesting discussions, and farmers find, that to improve their farms, their hay and grain must be consumed upon them. In short, there has been a manifest improvement—by it the farmer has bettered his circumstances—as a class they are much relieved from debt, and many of them have become wealthy. An investment of money in real estate now yields a handsome profit: and last, though not least, their lands have nearly doubled their value. That this society has done something towards these good results, cannot be denied; and that there is a better feeling prevalent among our farmers, is equally true, but it is likewise true, that our county societies are not sufficiently encouraged and supported; that few of them have had their annual fairs, and of those few the corresponding secretary has not been informed. He will only further remark, that under many discouragments our motto ought still to be *perseverance*, and if untiring industry will not insure to us success, we will at least show to the community that we deserve it.

J. P. BEEKMAN, *Corresponding Sec.*

Flemish maxim.—" No forage, no cattle; without cattle no manure, and without manure no crop." Upon the cultivation of clover, in the alternating system, says Radcliff, hinges apparently, the whole of the farmer's prosperity. It is the summer support of all his stock, which are kept in paved stables summer and winter.—The first cutting of clover is used for soiling, and the second for seed. Two cuttings from an acre will support four cattle from May to October. Ashes are sown upon clover in February, at the rate of forty-five bushels the acre. Without clover, continues our author, no man in Flanders would presume to call himself a farmer.

Rule for determining the weight of hay.—Hay in the field-rick, says Low, weighs somewhat better than 112 lbs. the cubic yard; after being compressed in the stack, it weighs from 140 to 180 lbs. and when old 200 lbs.

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at this office, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 3d and 19th of March inclusive. Numbers under ten not noticed.

POST-OFFICES.		POST-OFFICES.		POST-OFFICES.	
Adrian, Mich.	11	Herkimer, Herk.	23	Richmondville, Scho.	11
Ames, Mont.	12	Huntington, Suff.	22	Rhinebeck, Dutch.	22
Alexander, Gen.	11	HeadCowneck, Queens	14	Ringoes, Va.	11
Alden, Va.	11	Ithica, Tomp.	13	Rushville, Ont.	11
Bainbridge, Chen.	24	Johnson's Springs, Va.	11	Suffield, Ct.	14
Berlin, Renss.	14	Johnstown, Mont.	20	St. Georges, Md.	17
Belvidere, N. J.	10	Keene, N. H.	11	Stockholm, St. Law.	15
Bruynswick, Ulster,	17	Kinderhook, Col.	16	Stuyvesant, Col.	12
Bennington, Vt.	37	Kingston, Pa.	13	*Sherburne, Chen.	14
Butternuts, Otsego,	11	Lancsborough, Mass.	11	St. Albans, Vt.	28
Cheraw, S. C.	11	La Porte, Ind.	11	Salem, Wash.	13
Coventryville, Chen.	11	Leeds, Greene,	11	Sheffield, Mass.	26
Cobleskill, Sch.	11	Lynchburgh, Va.	48	Stone Ridge, Ulster,	11
Clyde, Wayne,	34	Lee, Mass.	11	Smithtown, Suff.	33
Coeymans, Albany,	14	Lewiston, Pa.	11	Summer Hill, Cay.	11
Chamblisburgh, Va.	11	Lenox, Mass.	13	Stratford, Con.	22
Coventry, Chen.	18	Milton, Ulster,	10	Stockbridge, Mad.	11
Concordville, Pa.	11	Montpelier, Va.	26	Stamford, Del.	11
Canterbury, Or.	11	Maltaville, Sar.	20	Saratoga Springs,	100
Canaan 4 corners, Col.	11	Millport, Tioga,	11	Skaneateles, Onon.	11
Covington, Gen.	11	Maueh Chunk, Pa:	14	Stillwater, N. J.	13
Cornwall, U. C.	15	Minaville, Mont.	24	Salsbury Centre, Mont.	11
Chillicothe, Ohio.	22	Montgomery, Orange,	31	Suffolk, Va.	11
Cancinnatus, Cort.	17	Marcy, Oneida,	11	Spring Arbor, Mich.	15
Davis' Store, Va.	11	Meadville, Pa.	11	South Middletown, Or.	11
Deerfield, Mass.	26	Mamaroneck, W. Chest.	11	Terre Haut, Ind.	11
Dover, Md.	11	Morrisville, Mad.	17	Tuckahoo, Va.	33
Enfield, Con.	11	New Holland, Pa.	11	Trenton Falls, On.	22
East Hamburgh, Erie,	13	New Bloomfield, Pa.	10	*Trumansburgh, Tom.	21
Edwardsville, Mich.	11	Nelson, Mad.	11	Tyre, Seneca,	11
Elkland, Pa.	11	*Newton, N. J.	24	Unadilla, Ot.	16
Earlville, Mad.	10	Norfolk, St. Law.	12	Unadilla, Mich.	11
*Exeter, Otsego,	14	*North Argyle, Wash.	13	Utica, Oneida,	17
*Elmira, Tioga,	39	Nichols, Tioga,	11	Vernon centre, On.	17
Franklin, Del.	13	New Britain, Con.	11	Vernon, Ct.	11
Farmer, Sen.	11	Northville, Mont.	25	Virgil, Cort.	11
Fairhaven, Vt.	12	New Chester, N. H.	11	Warwick, Ma.	11
Freetown corners, Cort.	13	Ottawa, Ill.	11	Woodstock, Vt.	33
Goshen, Con.	22	Ovid, Sen.	11	Winchester, Tenn.	33
Great Barrington, Mass.	11	Owego, Tioga,	28	Wheatland, Mon.	11
Garretsville, Otsego,	22	Port Byron, Cay.	12	Westminster, Ct.	11
Greensborough, Md.	12	Plymouth, Con.	11	Whalin's Store, Sar.	17
Glen's Falls, Warren,	11	Pompey, Onondaga,	13	W. Stockholm, St. Law.	13
Gorham, Ontario,	17	Poughkeepsie, Dut.	19	Winchester centre, Ct.	10
Greenbush, Rens.	10	*Pittsfield, Mass.	41	Winfield, Herk.	10
Goshen, Orange,	22	Plattsburgh, Clinton,	11	Williamsburgh, Pa.	22
Hempsted, Queens,	12	Porter's Corners, Sar.	18	*Washington city,	27
Hopewell, Ontario,	17	Perryville, Mad.	13	Watertown, Ct.	11
Homer, Cort.	33	Red Rock, Col.	11	West Springfield, Mass.	16
Hamilton, Mad.	11	Rome, Onei.	22	Williamstown, Mass.	11
Harmony, Chaut.	11	Riehmond, Va.	31	West Lodi, Erie,	11
Hoosick Falls, Rens.	22	Richland, Oswego,	11	Westfield, Ma.	22
Hammond, St. Law.	11	Richmond Hill, Ont.	11	York, Livingston,	31
Hannibal, Oswego,	13	Richfield, Otsego,	11	Zelienople, Pa.	11
Havana, Tioga,	15	Rutland, Jeff.	12		

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. March 19.	Boston. March 16.	Philadel'a. March 14.	Baltimore. March 14.
Beans white, bush.	2 14..2 40	2 00..2 12	....	1 25..1 50
Beef, best. cwt.	....	6 50..7 12	7 50..8 25	7 50..8 25
Butter, fresh, pound,	25.. 27	22.. 25	17.. 18	
Cheese, pound,	8.. 9	8.. 9	9.. 10	
Flour, best, bbl.	8 00..8 12	8 25..8 75	6 89..	6 89..
GRAIN—Wheat, bushel,	1 62..	....	1 45..1 56	1 45..1 56
Rye, do.	1 00..1 03	1 05..1 06	85..	90.. 95
Oats, do.	50.. 75	70.. 75	41.. 44	46..
Corn, do.	82.. 85	92.. 95	73.. 77	73.. 77
SEEDS—Red Clover, lb.	10.. 11	10.. 11	8.. 9	8½..
Timothy, lb.	11.. 12	....	2 00..3 00	
WOOL—Saxony, fleece, lb.	70.. 85	65.. 75	70.. 75	
Merino, lb.	50.. 65	55.. 65	62.. 68	
1-4 and common, lb.	40.. 48	40.. 45	42.. 47	
Pulled, lb.	18.. 55	30.. 60	20.. 56	
Sheep,	....	4 50..6 00		
Cows and Calves,	....	18 0..30 0		

FROM THE STEAM-PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

Vol. III. ALBANY, MAY, 1836. No. 3.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—Judah Dobson, Philadelphia—Messrs. Hovey, Boston—George C. Thorburn and Alexander Smith, New-York, and Samuel F. Glenn, office of the National Intelligencer, Washington. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

☞ Our paper of to-day will be found uncommonly rich in communications upon practical husbandry. Although we have made another effort, by a liberal use of small type, to clear out our docket, we are obliged to postpone the publication of communications, some of which ought to be given in this number, but which are last upon our files. The reader will find much of interest on the subject of sheep husbandry, as also on the use of apples as food for farm-stock.

THE DAIRY ZONE.

We have heard the remark repeated, that in the United States, the cheese and butter district is circumscribed between the parallels of 40 and 45 degrees north latitude. It seems to be true, that the principal cheese dairies are within those parallels; and that alin though very excellent *fresh* butter is made in Pennsylvania, and states west and south, yet we have an impression, without being able to determine, at present, how true it is in fact, that comparatively little butter is produced for exportation south of New-York. Whether this fact is merely imaginary, or, being true, whether it is owing to climate, to herbage, or to incidental causes, we shall not stop to inquire. Most plants and animals have their natural zone, beyond which they deteriorate or do not live. The potato, for instance, deteriorates south of latitude 40; and the fact is of common notoriety, that cows do not furnish that abundance of milk in the southern states, that they do in the northern. The reputation of Goshen butter is well established; and yet we are persuaded, that butter made with the same care in the northern and western parts of the state, particularly in the hilly and undulating districts, is as good as that made in the county of Orange. And why should it not be so? The climate and herbage are similar.

It is sufficient, for the present, to state, that the zone of which we have spoken, *is* well adapted to dairy farming—that the business is a safe and profitable one, requiring but little outlay for labor; and that there are, in our state, large districts, yet unoccupied, or but partially improved, which are peculiarly fitted for this branch of husbandry. There are strong reasons which urge us to embark more largely in this business. In the first place, dairy and sheep husbandry afford a certain and cheap means of improving the fertility of our lands. In the second place, it is a safe business, both in regard to product and price. Neither dry nor wet, nor cold nor hot seasons, are so liable to impair the products of the dairy as they are of the grain crop; and the demand is likely to increase more rapidly than the supply. The American people are growing rich, and as their wealth increases, so will their wants and indulgencies. Cheese is yet but partially found upon their tables, nor has butter become an indispensable article of diet, and when used, is in many cases used very sparingly. Our dairy zone already furnishes the principal part of the cheese which is consumed in Pennsylvania, along our southern seaboard, and in the vallies of the Mississippi and Ohio, and its consumption will be extended to the remote interior. Each district of our country seems adapted to some peculiar culture, rendering each dependant upon the others, as if to unite us closer in the bonds of fellowship and good feeling. The south and south-west excel in cotton, rice and sugar; the middle, east and west, excel in tobacco, and produce much grain; the north-west, embracing a portion of this state, find their interests best promoted by the culture of wheat and cattle grazing; New-England thrives by her manufactures and fisheries; while the district of country extending along the north lines of Pennsylvania and New-Jersey, embracing the northern borders of the Mohawk valley, and stretching from lake Erie into New-England, is destined to become, as it has in a measure already, the great dairy district of the Union, nay of the American hemisphere. Nature has provided the requisites—a suitable climate, and good air, good water and good herbage—and man will *profit* from them. We use the term *profit* emphatically—as we consider the country and the employment calculated to foster and perpetuate those social and republican virtues, which are the great ornament and blessing of rural life. If not the richest in dollars, we think the district we have described, is destined, ultimately, to become the richest in moral worth, in republican virtue—in the treasures which improve society, and render man happy—of any portion of our country.

AGRICULTURE OF DUTCHESS.

We have often spoken of the agriculture of Dutchess, as exceeding, in improvement and profit, that of any other portion of the union; and have ventured to add, that even in this county, the capacities of the soil, and the skill of the husbandman, are yet but partially developed. It appears from official statements, that she sent to New-York, during the last year, of

Wheat,.....	17,145 bushels.	Rye, ...	42,968 bushels.
Corn	190,092 "	Oats,....	587,838 "

that of all the *grain* received at New-York from different parts of this state, she furnished more than one-third, or 838,043 bushels, and which was more than one-quarter received from all places.—This was probably wholly the produce of that county; and it is stated that large quantities, not embraced in these returns, were sent eastward into New-England, and much sent to New-York in meal. The aggregate quantity of grain sent from Dutchess, during the last year, including meal, is computed, in the Poughkeepsie Journal, at 1,300,000 bushels. But the most remarkable fact is, that the surplus product of grain, sent to market from that county, has nearly doubled in two years, the quantity, in 1833 having been only 479,532 bushels. When we add the meats, wool and products of the dairy, in which this country is as prolific as she is in grain, we find a confirmation of the excellence of her agricultural management, and the cause of the high price of her lands. "$100 per acre," says the Journal, "is ceasing to be regarded as an unusual price for the better class of farms in this county." We have known Dutchess partially for thirty-six years, and have observed her progress in improvement; and we give it as our matured opinion, that the value of her lands, and the profits of her husbandry, have been nearly or quite quadrupled since 1800. But her improvement has not been confined to her husbandry. The improvement of the mind has kept pace with the improvement of the soil. No county can boast of a more intelligent yeomanry, of more social comforts, or of a more healthy state of public morals.

The official report of the inspection of grain at New-York, does not afford a correct criterion of the products of many counties; first, because the counties upon the river are credited for what they send to market, though the grain may come from the interior counties; and, second, because most of the wheat of the great west is manufactured into flour, ere it reaches New-York, and of this no account is embraced in the return. This is our apology for not inserting the entire return.

We give below an illustration of the excellence of farm management in Dutchess, in the practice of Mr. Harris. It will be perceived, that the average product of the whole of the improved lands of this excellent manager, exceeded in value $23 per acre; and that the surplus produce, actually sold, after deducting the expenses of labor, &c., amounted to a profit of more than seventeen dollars per acre—equivalent to the interest of $250 per acre. Let the young farmer ponder upon these results, and reflect, that *he has the capacities,* if he will improve them, of producing like results; and let his pride, his ambition, and a commendable desire to become useful and distinguished, prompt him to a diligent and persevering use of his faculties, mental as well as physical, in the spring-time of life. Every step we advance in the principles and practice of agriculture, tends to enlarge our view, increase our pleasures, and to urge us forward. Every improvement in this art serves to benefit the human family.

From the Poughkeepsie Telegraph.

Messrs. Editors—I read in the agricultural department of your paper of the 2d instant, a statement of the products of the farm of Mr. Samuel T. Vary, of Kinderhook, Columbia county, which was published at the request of the Agricultural Society of that county. It looks large, yet having kept an account the last year, I am induced to send you an abstract of it for insertion in the Telegraph, that it may be seen that Dutchess is not only able to keep up, but to go ahead. My statement differs some Mr. Vary's, as I give in whole numbers what my farm produced, and then what I sold from it. He only gave the sales, among which were four cows, two oxen, and two steers, all beef, which, it seems to me, must have been reducing his stock. My farm contains 158 acres; 143 of which are tillable. Mr. Vary has 145 acres of tillable land.

The whole amount of the proceeds of my farm for the year 1835.

190	bushels wheat, at $1.25,	$237 50
165	do. rye, at 94 cents,	154 69
325	do. corn, at 75 cents,	243 75
900	do. oats, at 50 cents,	450 00
27	do. buckwheat, at 50 cents,	13 50
7	live shoats,	40 00
1200	pounds pork, at 7 cents,	84 00
3	calves,	9 50
90	tons of hay, at $22,	1,930 00
	Advance on 26 sheep,	65 00
60	bushels potatoes, at 25 cents,	15 00
		$3.292 94

The amount of sales from the above.

100	bushels of wheat, at $1.25,	$125 00
165	do. rye, at 94 cents,	154 69
200	do. corn, at 78 cents,	156 25
700	do. oats, at 50 cents,	350 00
7	live hogs,	40 00
3	calves,	9 50
75	tons hay, at $23.50,	1,762 50
	Advance on 26 sheep,	65 00
	Received for pasture and feed exclusive of my own stock,	60 00
		$2,722 94
	Expenses for labor, &c. on farm,	275 00
	Nett profit,	$2,447 94

Poughkeepsie, March 15, 1836. DAVID HARRIS.

N. B. A letter from a correspondent at Wappinger's creek, gives us the product of fifteen acres of wheat, raised in that neighborhood, by Mr. Peter Ackerman, which averaged about 37 bushels the acre. It was sown on a clover sod, pastured till July. This is an extraordinary crop for an old cultivated district, and is another evidence of the agricultural improvement of old Dutchess.

SPANISH MERINO *vs.* SAXON MERINO.

We have given full scope to the controversy touching the relative merits of these two kinds of merino sheep, for they are both from the same parent stock, till some of our readers complain of its being rather an uninteresting topic. Men will commend what they best succeed with, and sometimes, and not improperly, what they wish to sell. It is admitted that the Saxons have the best wool; but this is obtained, say the advocates for the Spanish stock, at the expense of carcase and hardiness of constitution. We can well remember, that a strong prejudice obtained against the Spanish merinos on their first introduction, and it was not until within a few years that their reputation for usefulness became well established among us. This prejudice was in some measure owing to a want of knowledge of the proper mode of treating them, and to their change of climate, which caused the loss of many, and the deterioration of others. The same prejudice has had to be combated in other countries, on the introduction of merino sheep, as in Prussia, Silesia, Hungary and France, and it has required the persevering exertions of distinguished individuals, and the patronage of the governments, to overcome it. But it has been overcome, and the merinos have obtained a footing and a reputation in most of the countries of Europe; and by careful attention to improvement, in several they have been made to excel, in intrinsic value, the parent flocks of Spain. French marinos, at the public sales at Rambouillet, in 1834, sold, rams at about $100, and ewes at $50. They were of course select animals. The writer on sheep, in the Farmers' Series, which has just come to hand, speaking of the relative merits of the Saxon and Spanish merinos, says in strong language, "*The Saxony sheep are decidedly superior to those brought immediately from Spain, not only in their wool, but their general form and propensity to fatten.*" Without a particle of interest to influence our opinion, we do not hesitate to say, that we consider the introduction of the Saxon merino as a valuable acquisition to our husbandry, but by no means to the exclusion of the Spanish merinos. And we are also persuaded, that by adopting the Saxon mode of improvement, the Spanish merinos may be made to yield as fine a fleece here as they have in Saxony. The Spanish merino has not degenerated in any country, that we have heard of, where he has received proper attention. It is not climate so much as care, that causes the shades of difference. There are good and bad Spanish, and good and bad Saxon merinos; and the bad opinion of the latter, we mistrust, has arisen from the fact, that in the fever of speculation, many inferior Saxons were imported, and bought up by men who were not competent judges, and that these inferior animals have tended to bring into disrepute the whole family.

We give below the figure of a Saxon buck, and an extract giving the history of their introduction from Spain, their treatment, and improvement, which cannot fail to interest our wool growers, and to eradicate unreasonable prejudices which in some cases certainly exist.

"The Elector of Saxony ranks among the first who patriotically and wisely devoted himself to the impovement of the inferior breed of sheep which pastured on the neglected plains of Germany. The indigenous Saxon breed resembled that of the neighboring states: it consisted of two distinct varieties, one bearing a wool of some value, and the other yielding a fleece applicable only to the coarsest manufactures.

"In 1765, at the close of the seven years' war, the Elector imported one hundred rams and two hundred ewes from the most improved Spanish flocks, and placed a part of them on one of his own farms, in the neighborhood of Dresden; this portion he kept unmixed. He endeavored to ascertain how far the pure Spanish breed could be naturalized in Saxony. The other part of the flock were distributed on other farms, and devoted to the improvement of the Saxon sheep.

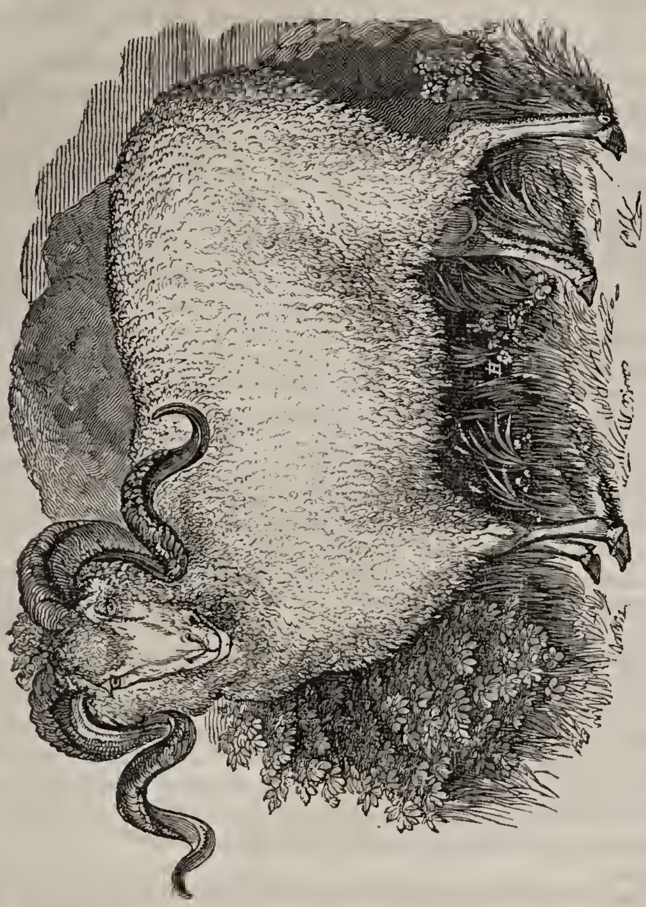
"It was soon sufficiently evident to the enlightened agriculturist, that the merinos did not degenerate in Saxony; many parcels of their wool were not inferior to the choicest fleeces of Leon. The best breed of the native Saxons was also materially improved.—The prejudice against every innovation, on the practice of their ancestors, was, however, as strong in Saxony as elsewhere, and the majority of the sheep-masters were still averse to the improvement, but the Elector was determined to accomplish his object; he imported an additional number of the Spanish sheep, and then, adopting a measure unworthy of such a cause, he compelled those who occupied land under him, to buy a certain number of the merino sheep.

"It was not necessary long to pursue this compulsory system: the most prejudiced were soon brought to perceive their true interest. The pure merino breed rapidly increased in Saxony: it became perfectly naturalized; nay, after a considerable lapse of years, the fleece of the Saxon sheep began not only to equal the Spanish, but to exceed it fineness and manufacturing value.

"By referring to page 155, it will be perceived that a sample of picklock merino wool was 1-750ths of an inch in diameter, and exhibited 2,560 serrations in the space of an inch; while the Saxon wool (see page 89) was only 1-840ths of an inch in diameter, and presented 2,720 serrations of an inch. Corresponding with this, and most satisfactorily illustrative of the account which has been given of the structure of the fibre of wool and its felting property, and manufacturing value as a dependant on that structure, the price—the true test of value—of the best Leonese Spanish wool in 1834, varied from 2s. 6d. to 4s., while that of the Saxon wool was from 4s. 9d. to 5s. 3d. per pound.

"The government of Saxony very materially contributed to this result by the establishment of an agricultural school, and other minor schools for shepherds, and by distributing certain publications which plainly and intelligibly explained the value and proper management of the merino sheep. The government may fail to accomplish many capricious or tyrannical objects, but it will receive its best reward in the full accomplishment of its purpose, when it thus identifies itself with the best interests of its subjects.

Fig. 19.



"The above is a portrait of a Saxon merino ram, the property of Lord Western, and used by him extensively and beneficially in the improvement of his Spanish merinos. It will be seen that his frame differs materially from the Spanish merino; there is more roundness of carcass and fineness of bone, and that general form and appearance which indicate a disposition to fatten, and are tolerably certain pledges that the carcass will not be entirely sacrificed to the fleece.

"In Saxony, as in Silesia, although the sheep are housed at the beginning of winter, yet they are turned out and compelled to seek, perhaps under the snow, a portion of their food whenever the weather will permit; and the season must be unusually inclement in which they are not driven into the courts at least for two or three hours during the middle of the day. The doors and windows are also frequently opened, that the sheep houses may be sufficiently ventilated. Some sheep masters, whose convenience is promoted by such a system, keep their flock in a house or yard during the whole of the year, and it is not believed that the sheep suffer from this, either in their health, or in the fineness of their fleece. A great quantity of salt is usually given to the Saxon sheep, and principally during the summer, either in their drink or sprinkled among the fodder.

Very great care is taken by the Saxon sheep-master in the selection of the lambs which are destined to be saved in order to keep up the flock: there is no part of the globe in which such unremitting attention is paid to the flock. Mr. Charles Howard, in a letter with which he favored the author, says, that " when the lambs are weaned, each in his turn is placed upon a table that his wool and form may be minutely observed. The finest are selected for breeding and receive a *first* mark. When they are one year old, and prior to sheering them, another close examination of those previously marked, takes place; those in which no defect can be found, receive a *second* mark, and the rest are condemned. A few months afterwards, a third and last scrutiny is made, the prime rams and ewes receive a *third* and final mark, but the slightest blemish is sufficient to cause the rejection of the animal. Each breeder of note has a seal or mark secured to the neck of his sheep, to detach or forge which is considered a high crime, and punished severely."

MANGEL WURTZEL.

The culture of this root is extending among us; and although different opinions are given of its value, when compared with the Swedish turnip, the preference for one does not necessarily preclude the other. They thrive best on different soils—the mangel wurtzel doing best in a deep, moist, clayey loam, and the Swede on a dry soil, inclining to sand.

The mangel wurtzel is a species of beet, of which there are varieties, differing principally in color. The flesh colored is preferred, as affording the largest produce; though the whiter species, when of moderate size, has been found to contain the most saccharine matter. The soil for this crop should be rich and deep, and if trench ploughed the better, as roots cannot be expected to grow to a fair size below the stirred earth. Trench ploughing is merely ploughing two furrows deep, by following, with a second plough, in the track of the first. The surface should be perfectly pulverized with the harrow. The seeds should be sown in drills, at 18 to 24 inches apart, the latter being preferred, as it will permit the crop to be dressed with the cultivator. They may be sown with Robbins', or the common drill barrow, or dropped by the hand, in shallow furrows previously drawn, and then covered an inch, or an inch and a half deep. A seed will often produce two or more plants, all but one of which should be drawn out, and the plants thinned to 8 or 12 inches whenever they are so far advanced as to warrant it. Some persons strip the side leaves to feed to cows, when these have become large, but it is believed that this is done at the expense of the future growth of the root. But the crop should be harvested when the plants have matured, which is indicated by the lower leaves changing their color, as after this period, as was ascertained by Chaptal, a portion of their saccharine matter is transformed into potash, and the roots become less nutritious and palatable. If sown the 20th to 25th May, the crop will have time to mature early in October. The product is generally equal, and sometimes larger, than that of ruta baga—often amounting to fifty tons the acre, but twenty tons, or 600 bushels, is a fair crop. This root may be profitably grown in the middle and northern states, though the extreme north is not so well adapted to it as it is to the Swedish turnip. The whole process of culture consists in thinning the plants, keeping down the weeds, and the surface of the soil mellow. They do not require to be earthed or hilled. The seed may also be sown with a dibble, thus: take a strip of plank, two or three feet long, and three inches wide; bore a hole in the centre, and fix in it an upright handle, three feet long, with a cross piece at top to hold by; then bore holes at 1½ inches distance, and fit in pins, to project 1½ inches from the bottom, sharpened at the lower points. With this the planter makes holes upon the line of the row with great expedition; a boy follows, drops a seed in each hole, and covers it with his toes. If two feet long upon the base, every impression of the dibble will make a dozen holes. Seeds planted with the dibble are most apt to grow, as they can readily be planted at a required depth, and be covered with fine mould.

The roots may be preserved in the winter in cellars or pits, like ruta baga, though they are less hardy. They are readily eaten by all farm stock, and are found highly nutritious; though all seem to agree in this, that they should not be fed without other food, as hay, straw, or other roots, and should at no time constitute more than two-thirds of the food of a beast. As we have remarked, different opinions prevail as to the comparative merits of this root, with Swedes and potatoes, as food for farm stock. Experiments made under the authority of the Highland Society, in feeding with potatoes, mangel wurtzel, and ruta baga, for three months, produced a like result as to increase in flesh, but the dealers thought the beef of the cattle fed upon ruta baga, some three or four dollars a beast better than the other. The Doncaster agricultural committee, thus sum up the advantages of cultivating this crop:

"It is more sure to plant; being very little liable to the fly or grub. It will produce more crop. It is off the land earlier. It is better spring food. It is useful as a change of fallow crop, when the land is tired of turnips; and can be grown on soils on which they cannot be raised."

On the other hand, in favor of Swedish turnips, it may be said: " That the weeding and thinning are far less expensive. That there is rather more time allowed for fallowing in the spring. That the succeeding crop is better than after mangel wurtzel; and

"That cattle feed best on Swedish turnips when they are fed alone."

And, *we* add, that with us they may be grown as a second crop after clover.

It should be borne in mind, that the price of labor in Britain is much less than with us; that the mangel wurtzel crop requires great labor, in May and June, before the seed of the Swedish turnip is sown; and that this labor, with us, is a matter of no little moment. It is probably advisable that the farmer should sow the beet or turnip, or proportions of each, according to the quality of the soil which is to be appropriated to them.

We shall speak of the culture of the Swedish turnip in our next.

Sheep Worms.—We hear that many sheep have been lost during the winter, by the worm in the head. This worm is believed to proceed from a fly, which deposits its eggs in the nostrils of the animal in the summer months, where it hatches, makes its way into the head, and often causes death. The general preventive has been the application of tar to the noses of sheep; but the operation requires to be often repeated, and the common mode is attended with so much trouble that it is often neglected. A sheep master has suggested a mode both simple and effectual. It is to take a log or logs, dress them six inches broad upon the upper side, and bore holes, with a large augur, two or three inchess deep, and at short intervals, the whole length; fill these with salt, and apply tar with a brush, as often as needed, say once a week, around all the holes, and give the sheep daily access to the salt. In this way the tar may be effectually applied, with out the trouble of yarding and handling the sheep.

INDIAN CORN.

All, or nearly all, the accounts we have published of great products of Indian corn, agree in two particulars, viz: in not using the plough in the after culture, and in not earthing, or but very slightly, the hills. These results go to demonstrate, that the *entire* roots are essential to the vigor of the crop; and that roots, to enable them to perform their functions as nature designed, must be near the surface. If the roots are severed with the plough, in dressing the crop, the plants are deprived of a portion of their nourishment; and if they are buried deep by hilling, the plant is partially exhausted in throwing out a new set near the surface, where alone they can perform all their offices. There is another material advantage in this mode of cultivating the corn crop—it saves a vast deal of manual labor. See the communication of Mr. Tomlinson, in to-day's paper.

There is another question of interest to farmers, which relates to the mode of harvesting the crop, that is, whether it is best to top the stocks, cut the whole at the ground when the grain is glazed, or cut the whole when the grain has fully ripened. We have stated the experiments of Mr. Clark, of Northampton, one of the best practical farmers of our country, and of other gentlemen, showing, that the grain suffers a diminution of six or eight bushels the acre, by topping the stocks; and there seems to be no counterbalancing benefit in the fodder, unless at the expense of carrying the stocks to the borders of the field, that they may be secured before the crop is gathered, and before they become blanched and half ruined. And it is no protection against early autumnal frosts, but rather exposes unripened grain to be more injured. Hence so far as regards these two modes, all who have made a comparison, seem to concur in the opinion, that stripping the corn of its tops and leaves, is a bad practice. William Carmichael, of Virginia, has given us in the Farmer's Register, his experiments in this matter, which go to corroborate the conclusion we have drawn. He took, promiscuously 100 ears from corn that had been topped, and 100 ears from that which had not been topped, growing side by side. The first weighed,

on the cob, 50 lbs.—shelled, 41 lbs., and measured 21 qts. 1 pt.
The other, " 54 " " 46 " " 26 "

Showing a difference of nearly one-fifth in favor of the unstripped or untopped corn. The fact is, that topping not only prevents the further elaboration of the sap, which can only take place in the leaves, and which is necessary for the growth of the corn, but it deprives the grain of much that is already elaborated, and on its way to the grain. If a fruit tree is deprived of its leaves, before the fruit has attained its growth, or mature flavor, the fruit will no longer grow, nor will it attain high flavor, for its supply of elaborated food, or vegetable blood, is cut off by the loss of leaves. We have noticed this particularly in the plum.

Satisfactory experiments have not been made to determine, whether it is most advantages to cut the crop when the grain is merely glazed, or to wait till it is perfectly ripe. This will depend upon the amount of loss, if any, in the grain, by early harvesting,—the relative value of the grain and fodder, and the prospect of both being injured by early frosts—for neither are liable to suffer from frost after the crop has been cut and put into shooks. It is to be noticed, that in early cutting, the stalks are succulent, and abound in elaborated sap, on its descent from the leaves to the grain, and that this supply of food to the grain continues to flow probably for some days after the corn is in shook, and if so, the grain itself continues to improve, though we think it likely that the crop undergoes some trifling diminution. But if frost is likely to intervene before the complete maturity of the crop, there is no doubt but the corn will suffer less in shook than it will standing, while the fodder will be materially injured by frost. Admitting that there is a small loss in grain by early cutting, though it is undoubtedly less than when it is topped, the difference in the value of the fodder, under the two modes of management, is vastly in favor of early harvesting. We do not pretend to calculate to a nicety, the difference in nutritious properties, of corn stalks cut in a succulent state, early in September, well cured and well housed, and those left standing till October or November in the field, but we should think it fifty per cent. Well cured corn stalks afford an excellent winter food for neat cattle; and when fodder is likely to be in demand, they may be made to contribute largely to the profits of the farm. Several of our acquaintance have kept their neat stock almost entirely upon this fodder during the past winter, and we have done the like, having first cut ours in a cutting machine; and so far as we can learn, the cattle kept upon them are in excellent condition.

The preceding considerations justify us in recommending, that in the management of the Indian corn crop, the following rules be observed, at least partially, so far as to test their correctness:

1. That the corn harrow and cultivator be substituted for the plough in the culture of the crop.
2. That the plants be not hilled, or but slightly so—this not to prevent the soil being often stirred and kept clean. And,
3. That in harvesting, the crop be cut at the ground as soon as the grain is glazed.

THE POTATO.

There is hardly any crop about the management of which a greater diversity of opinions exist than this—whether we regard soil, seed or mode of planting and culture. The British Board of Agriculture, with a view to ascertain the best mode of managing the potato crop, addressed a number of queries to the principal farmers in the kingdom, calculated to elicit the facts necessary to determine this point. The circular and the answers were published in a large quarto volume, together with the report of the committee charged with the arrangement and publication of the facts. The statements are so variant, that the committee were unable to recommend any particular practice, as that which was most successful in one case, proved defective in other cases. The only important fact settled by the inquiry, was, that potatoes differed very materially, in some cases fifty per cent, in their nutritive properties, a consideration as material for the stall as for the table. Since the date of that publication, however, very nice experiments have been made in Great Britain, particularly in Scotland, and by Mr. Knight, and also in the United States. From these we draw the following conclusions:

1. That in this latitude the potato is better, both as to product and flavor, when grown on a moist and cool, than when grown on a warm and dry soil—better on a moderately loose and friable, than on a hard compact soil.
2. That they do better on a grass ley than on stubble—and better with long or unfermented manure, than with short muck.
3. That medium sized whole tubers give a better crop than sets or very large tubers.
4. That drills or rows should be adapted to the growth of the tops, and the condition of the soil—the small growing tops nearer, and those having larger tops farther apart—so that the sun may

not be excluded from the intervals; and where the soil is stiff, or the sod tough, hills are considered preferable to drills.

5. That if the ground is well prepared, and the seed well covered, they are not benefitted by heavy earthing; and that ploughing among them, or earthing them, after they come in bloom, *is* prejudicial.

6. That the kinds best for the table, are also best for farm stock, containing a larger portion of nutriment than inferior kinds.

While upon the subject, we will mention, that our friend Capt. Joab Centre, who has some time ago left ploughing of the deep for ploughing of the glebe, has invented a potato plough, which is said greatly to facilitate the gathering of the crop. As soon as we become satisfied of its utility from our personal knowledge, we intend to give a cut and description of it.

THE GARDEN.

Those of our fair readers, as well as others who design to cultivate flowers, should have their grounds put in order to sow their seeds. Hardy perennials and biennials, as the larkspurs and hollyhocks, of which there are several beautiful sorts, vallerians, perennial poppies, pinks, penstemmons, coreopsis, &c., and many of the hardy annuals, as astors, marygolds, balsams, petunia, coxcombs, amaranthus, &c., may be sown the fore part of this month, in warm borders. Take care to cover the seeds just enough to keep them moist, and to press the soil moderately upon them. If the ground becomes dry, it may be occasionally watered. If a frame is at command, it is better to start the tender annuals, and indeed all that it is desirable to bring early into flower, under glass, about the middle of the month, and to transplant into the border as soon as the season will permit. A single sash will serve for twenty kinds.—Most of these flower best when transplanted. They should not be crowded in the border. A good assortment of seeds, embracing twenty of the best varieties, will cost at Thorburn's one dollar.

It will still do to transplant roses and flowering shrubs, and also herbaceous perennials. Dahlias, ferrarias, tuberoses, and tyger flowers may be planted out.

We would recommend to every family to cultivate medicinal plants, as bam, tansey, mint, hysop, rue, wormwood, &c.; they are often useful and necessary, are all perennial, and require little trouble when once planted. There are also herbs employed in the culinary department, which should not escape notice, such as sage, parsley, thyme, and rhubarb. All these may be raised in a garden with about the same trouble that it often costs to beg them, when wanted, in a neighborhood. Egg plants, tomatos and peppers, may be planted in a warm border, or under glass, to be planted out when the season is sufficiently advanced. Onions, beets, carrots and parsnips, should be planted early this month, if not already done.—Plant a few hills of corn very early, and when it breaks the ground, you may plant Lima beans and melons. It will be of little use to plant these before the ground is warm enough to sprout corn.—Sow cabbages for a winter crop from the 25th to 30th May.

As soon as plants have good hold of the soil with their roots, the surface should be broken up, and the oftener it is stirred the better, not only to destroy weeds, but to open it to the influence of the air, heat and dew.

THE HOUSE-WIFE.—PRESERVING BUTTER.

Believing that butter may be kept sweet and good, in our climate, almost any length of time, if properly manufactured, and well taken care of, in order to test the validity of this opinion, we had two pots put down, one in June, and the other in August, 1834, more than twenty months ago; and on probing them with a tryer, while penning this article, the butter is found perfectly sweet, and seems to retain most of its original flavor and freshness. We design to send both pots to Boston next fall, with a view of having its mode of manufacture, and method of preservation, judged of by the butter tasters of that notable city.

In the manufacturing process, *no water is permitted to come in contact with the cream or butter*—because it is believed that water, and particularly soft water, dissipates much of the fine flavor that gives to butter its high value. The Orange County Dairy Women say, "give us good hard water and we will make good butter" for the reason, probably, that it abstracts less of the aroma from the butter than soft water. The temperature of the cream may be regulated by cold or hot water put into a tub, in which the churn may be plunged. If the cream is clean, it needs no washing; and if the butter is dirty, water will never clean it.

Nothing but good well pulverized salt is used in preserving the butter; this is *all* mixed, and *all* dissolved, in the mass, before the butter has its second, thorough and final working with the butter ladle, and which is not finished till *all* the buttermilk is expelled.

To avoid all taint from the butter vessels, and the better to exclude it from the air, which soon injures it, the butter is packed close in clean stone jars, and when nearly filled, is covered with a strong brine, rendered pure by previous boiling, skimming and settling. In twenty months this brine has been twice renewed, on the appearance of a film upon the surface of the old pickle. To preserve butter, air and water, and heat above 65 or 70 degrees, are to be guarded against as much as possible. The brine upon the surface does not penetrate the mass, nor while sweet taint it; but it thoroughly excludes the air.

To Encourage Agriculture, a bill has been reported in the Maryland legislature, for loaning to farmers, on landed security, and at long terms, one million of dollars. The loans to bear six per cent interest, payable semi-annually; with the further provision, that such sums as shall be expended in the melioration of lands by drainage, by the application of mineral manures, or in planting the mulberry and the production of silk, shall only pay an interest of *four* per cent, thus virtually paying a premium of two per cent upon the capital employed in these improvements.

NOTES TO CORRESPONDENTS.

P. S. Dichard, of Winchester, Ten., who has the highest claims to our regards, for he has sent us thirty-three subscribers, and payment in advance, has sent to us a number of queries in regard to sheep husbandry, to which he has solicited *our* written answers.—Although we might refer him to the communications of our correspondents in this and the two preceding numbers, for excellent instructions in sheep husbandry, we dare hardly disregard his request. We therefore select the prominent queries, and subjoin answers in our brief way.

1. What sheep are the most profitable? The Saxon and Spanish merino for fleece; the South Down and New Leicester for mutton. The fleece would probably be the most desirable object in Tennessee.

2. What is their cost? Fair merinos may be had, after shearing, bucks at 8 to 12 dollars, ewes four to six. New Leicesters at $25 to $30 for bucks, and $12 to $15 for ewes. South Downs are scarce, and we can hardly quote their price. Select animals will be higher than the prices quoted.

3. Where can they be had? All, except the last, in the counties about Albany, and elsewhere, probably in Ohio.

4. What is best time to move them? In September.

5. What pasture best suits them, and how many can be kept on an acre? Sheep want a dry pasture, and if hilly and stony, the better. Although they will *thrive* best upon good herbage, such as other farm stock like, they will *live* where other animals will starve. They bite close. An acre of good pasture will summer six sheep.

6. How many should be kept together?—what shelter do they require, and what food, in winter? The number in small enclosures, or in a yard, or in a shed, should not exceed 100—when in large pastures, it may exceed 100—sheds are only necessary to protect them from storms—to keep them dry. They want air and exercise. See Cultivator, No. 2, of this volume. Sheep are kept upon *hay* and straw in winter—some add oats, or corn, or roots, either of which are serviceable in keeping them in good plight. One quart of grain may be given to a dozen sheep per day, beginning to feed with a less quantity. In Tennessee sheep will get much from the pastures in winter, where they should be permitted to range in dry weather.

7. How is wool managed for exportation—the time of shearing, &c.? The wool is carefully rolled up, each fleece separate, and tied, and sent to market in bales like those used for cotton. Shearing is generally performed here in June, after the cold rains have subsided. It is considered bad policy to sheer lambs the first season, as they want their fleece to protect them during our cold winters—and it is found that nothing is gained by early shearing. It is advisable to tag ewes in spring and autumn. Sheep enrich the

land on which they run. A good shepherd and his dog can take care of 1,000 to 1,500 sheep, or more, and feed them in winter.

8. Can a *practical common sense* man, one that is well acquainted with the management of sheep, be had, and for a term of years, and at what salary? Such men may no doubt be had, at a salary of $200 per annum, and board. ☞ Should any one who reads this be disposed to engage, and can bring evidence of his qualifications and character, he may advise us of the fact, or address Mr. Dichard.

From the representation given of the country, we feel a strong conviction, that the district described is well adapted to sheep husbandry, and that it might be rendered there a profitable business.

F. I. Fenn *seriously* asks our instructions for cultivating white beans; and we give them. Plant as early as you do Indian corn, or 20th May, in hills or drills; the rows two and a half feet apart—the hills eighteen inches asunder, four beans in a hill; or if in drills, one plant may grow in every six inches or less; keep the crop free from weeds, and the surface of the soil open—and harvest when the crop is *ripe*. The soil described will do to *try*, and it may be improved by dung, and possibly by plaster. Note down the treatment of the crop, the expense, the product, and the profit or loss: and improve your second year's practice by the errors of the first. Take counsel from your experience. White beans will not *improve* any soil, though they are often a profitable crop. The poorer the soil, the lighter the crop. Coarse dung is adapted to this crop, and should be buried; and a grass ley, once ploughed and well harrowed, will add much to the product.

CALORIC,

Is the matter of heat, in contradistinction to the sensation which it produces. It is an imponderable fluid, which exists in all terrestrial bodies, however cold to the touch, in a greater or less degree, as in air, water, wood, iron, &c., and is chemically combined with them. It is often termed latent heat. It is interposed between the molecules or atoms of matter, tends to separate them from each other, and when accumulated beyond its natural quantity, the excess acts as heat, changing solids into liquids, and liquids into vapor—as ice into water, and water into steam. "Matters which exist naturally in a gaseous state, and which are rendered solid by being brought into combination with other substances, return to their natural state as soon as a sufficient degree of heat is applied to destroy the force of affinity which unites them to their base. This is illustrated in the burning of lime, and boiling of gypsum—the acids, or rather the gases united with their base, are expelled by the heat. But those which are not originally gaseous in their form, as oils, water, and some minerals, pass through all the degrees intermediate between their natural state and that of imperceptible vapor.—*See Chaptal, p.* 10. Whatever brings the atoms of matter violently and closely together, be it compression, percussion or friction, or the mixture of two substances, which, when chemically combined, occupy less volume than when separate, tends to expell the caloric which interposed between them, and by destroying the chemical union which existed between those atoms and the caloric, and to cause sensible heat. Thus hammering cold iron upon the anvil, will force out the caloric, and the metal will in time become red hot. By rubbing two pieces of dry hard wood, fire is produced, which existed before in a latent state, but which by friction is set free. Water thrown upon quick lime or boiled gypsum, often produces a heat which sets fire to buildings. In this case the caloric comes from the water. Fifty pounds of lime will take up and solidify seventeen pounds of water. The caloric which the water contained is thereby set free, and becomes sensible heat. The air too, readily elicits fire, and ignites spunk, on being violently compressed in a metal tube. Caloric is also disengaged from the atmospheric air by combustion. As condensation produces heat, so expansion or evaporation produces cold, by imbibing caloric from surrounding objects. Spontaneous combustion arises from the chemical union of matters, which occupy, in their combined form, less space than when separate. Both heat and cold are artificially produced by mixtures, one kind abstracting heat from the surrounding objects, and producing cold, and the other giving it off, and producing heat. Hence the coolness which is produced by watering or sprinkling during the heats of summer. By the evaporation which ensues, the volume of water employed becomes greatly enlarged, and the heat of the atmosphere interposes between its particles, becomes latent, and is carried off with the vapor. The more volatile the liquid, the greater the coolness induced. Ether, ammonia, camphor and alcohol, produce more sudden changes in temperature than water. Ether is volatalized at a temperature of 98, ammonia at 140, camphor at 145, sulphur at 170, alcohol at 176, and water at 212°, or boiling heat; muriat of lime becomes volatalized at 230, and mecury at 660° of Fahrenheit; but when the heat is abstracted, all these matters return to their natural state. "Whenever a body changes its chemical state, (says Dr. Black,) it either combines with, or separates from, caloric." Fix a small tin cup with ether in a large watch-glass containing a little water, and place both under the receiver of the air pump. The exhaustion of the receiver will cause one of the fluids to *boil*, and the other to *freeze*, at the same instant.—*Parke.* Mix three parts of snow with four parts of potash, immerse the bulb of a thermometer in the mixture, and the quicksilver will show an artificial cold of 83 degrees. When water is poured upon dry pulverized plaster of Paris, in order to form cornices in rooms, great heat is produced by the mixture. This is owing, as in slacking lime, to the water giving out its caloric as it becomes solidified in the plaster or lime. When the cream in a churn changes from a fluid to a solid, a considerable degree of heat is produced from the same cause.

Although a universally pervading element, and essential to all the purposes of organic life, caloric is subservient to the artificial use of man in innumerable ways; and those who understand best its properties and laws, will best know how to apply it to the useful purposes of life. Heat is necessary to the germination of the seed, the developement of the plant, and the maturity of the fruit; it is also necessary to the fermentation of manures. Some plants grow, and some fruits ripen, in a temperature of 45 to 50, while others require a heat of 60 to 80 to perfect their maturity. Light porous soils, as sands and gravels, becomes heated by the sun's rays much sooner than compact heavy clays, and they part with their heat more readily, particularly sands, when the sun is obscured or withdrawn. The *color* of soils has also an influence upon their capacity for absorbing or retaining heat. Davy found that a black soil, containing nearly one-fourth of vegetable matter, when exposed to the sun, acquired in one hour an increased temperature of 23 degrees, while white soil, whose base was chalk, under a similar exposure, acquired an increased temperature of only 4 degrees. But the black earth, removed into the shade, lost again, in half an hour, 15 degrees of its acquired heat; and the white earth, in the same time and position, lost 4 degrees, or all it had acquired. In green houses, the walls are sometimes blackened, and the soil spread with the soot, in order to concentrate and fix the heat, and this has been known to raise the temperature in the house several degrees. On the table lands of the Alps, it is not uncommon to throw black earth upon the snow, to hasten its thawing, and expedite its preparation for tillage. *Aspect* has also a great influence in determining the influence of the sun's rays upon the soil. All slopes to the south, south-east, and south-west, are warmer than those in opposite directions. The nearer to a right angle the sun's rays fall upon a surface, the greater the heat they impart. Thus in constructing green houses, it is the rule to give the glass that slope which will bring it at right angles with the rays of the meridian sun, at the season its heat is most needed to excite rapid growth.

The practical benefits which the farmer may draw from the consideration of the preceding facts, are many and important. We shall confine ourselves to a notice of a few of them.

1. They show the importance of draining. Water is a bad conductor of heat. Land well drained may be worked and planted ten days or a fortnight earlier than if in a wet condition. If there is an excess of water in the soil, or reposing upon the subsoil, it prevents the ground acquiring the heat, in summer, necessary to the healthy growth and early maturity of farm crops, and necessary, also, to the decomposition of vegetable manures. If the water comes from springs, it is always of a cold temperature; if it is surface water reposing upon the subsoil, it becomes stagnant—in both cases it is unfriendly to an early or healthy growth of plants.

2. They show that the capacities of soils for heat may be increased, by mixing with those which are light colored, darker earths, as swamp muck, wash of the roads, earth from head lands and ditches,

and dark manures; and also, when flat and moist, by throwing them into ridges, and thereby rendering them more dry.

3. They suggest the propriety of adapting the crop to the soil, in reference to texture, color and aspect—of placing those which are natives of warmer latitudes, or which are liable to be injured by early autumnal frosts, as Indian corn, pumpkins, barley, red clover, &c., in the most favored situations; and of assigning to less favored soils, those which come from higher latitudes, or which are indigenous with us, as wheat, rye, timothy, peas, and particularly turnips, oats and potatoes. The temperature of soils is often so different on the north and south slopes of a hill—on white and dark soils—on those that are porous and adhesive—and on those which are wet and dry, as to make a material difference in the products of crops of the first class.

4. They suggest the value of pulverization, particularly of the surface, among hoed and drilled crops—the heat penetrating much more readily a surface that is frequently stirred, than one which has become compact and baked.

5. The most important means of benefitting the corn crop, by increasing the temperature of the soil, is the use of unfermented manure. This benefits in a two fold way: the fermentation itself generates heat, and, by rendering the soil loose and porous, it renders it more permeable to the warmth imparted by the sun and the atmosphere.

6. They show that seeds may be buried too deep. Few seeds vegetate at a temperature below 45 degrees. They should therefore be deposited as near the surface as a proper regard to moisture will permit, to bring them as much as possible within the influence of the heat of the atmosphere.

Seed Corn, that is steeped preparatory to planting, should not be suffered to dry on the surface of the ground, or by exposure too long to the sun, but should be buried in the earth while moist. In our last spring's planting, after finishing one field, which came up well, the seed was left exposed a day, in a basket, to the sun, and planted the day following. Much of this seed failed to vegetate, and some of that which grew, had a sickly, dwarfish appearance through the season. The like happened to Mr. Weston, of Washington, and Mr. Brewster, of Oneida. Another gentleman has informed us, that he planted steeped seed; that the three first rows were covered immediately, but that the residue was not covered until the whole field had been dropped, and the seed become dry. The three rows came up and grew well; the residue came up but imperfectly, and the plants they produced were inferior and dwarfish. The cause of these failures may be thus explained: Germination had commenced in the steep—a chemical change had taken place in the cotyledons, in the matter which feeds and sustains the young plant till it developes its leaves, and can take care of itself,—and by the subsequent drying, this nutriment was partially or wholly destroyed, and the corn failed to grow, or grew but feebly, for want of it. Where germination is stopped, after it has commenced, for want of moisture, the vitality of the seed cannot be again resusciated. We have had seed corn, after it had been steeped, keep good in a basket five days, in a cellar, where it sprouted, and was afterwards planted, and grew well.

White Mulberry Trees.—Mr. Asa Carter, of Champion, Jefferson, writes us, in consequence of the suggestion made in our March number, that he has for sale from 50,000 to 100,000 white mulberry trees, of two years growth, which he will sell at $30 per thousand—cheap enough. Mr. Carter enclosed us a specimen of silk manufactured by his daughter, who never saw a silk worm nor a silk reel, till last summer. This is a pretty good evidence that there is no great art or mystery in managing silk worms.

The Roman Cato has left for farmers the two following maxims:

1. Never to work within doors when there is any thing to be done without.
2. Never to do in fair weather what may be done in wet.

Correction.—In the astronomical article in our January number, in the 6th line below the cut of the solar system, the word "thousand" was inadvertantly omitted, and not noticed in reading the proof. The sun is thirteen hundred *thousand* times larger than the earth. Again, 4th line of next column, read, the diameter of *the earth* is 8,000 miles—and not *its* orbit.

AN ESSAY ON GRASSES.—*(Continued from page 33.)*

OF THE CULTIVATED GRASSES.

The forage, hay and pasture grasses, of which we are now about to treat, are found clothing the surface in every zone, attaining generally a greater height, with less closeness at the roots, in warm climates; and producing a low, close, thick, dark green nutritive herbage, in the cooler latitudes. The best grass pastures are found in countries that have least cold in winter, and no excess of heat in summer, as in Ireland, Britain, Holland and Denmark. In every zone, where there are high mountains, there are certain positions between the base and summit, where, from the equilibrium of the temperature, turf may be found equal to that in marine islands.

The universal presence of the forage grasses, and the rapidity with which all soils become covered with them, when left uncultivated, is the obvious reason why their selection and systematic culture is but of recent date. This branch of culture originated in England, about the middle of the seventeenth century, and at first embraced only rye-grass, was afterwards extended to cocks-foot, timothy, foxtail, &c. The Duke of Bedford made the latest and most laborious efforts towards attaining a knowledge of the comparative value of all the Baitish and some foreign grasses worth cultivating. The result is given in the appendix to Sir H. Davy's *Agricultural Chemistry*, and of which an abstract will be given at the close of this article.

With respect to the general culture of grasses, though no department of agriculture is more simple in the execution, yet, from the nature of grasses, considerable judgment is required in the design. Though grasses abound in every soil and situation, yet, all the species do not abound in every soil and situation indifferently. On the contrary, no class of perfect plants are so absolute and unalterable in their choice in this respect. The creeping-rooted and stoloniferous grasses will grow readily on moist soils; but the fibrous-rooted species, and especially the more delicate upland grasses, require particular attention as to the soil in which they are sown; for in many soils they will either not come up at all, or die away in a few years, and give way to the grasses which would naturally spring up in such a soil, when left to a state of nature. Hence in sowing down lands for permanent pasture, it is a good method to make choice of those grasses which thrive best in adjoining and similarly circumstanced pastures for a part of the seed, and to mix with these what are considered the very best kinds.

The grasses here to be treated of, may be classed as tall sorts, or those best fitted for hay; and dwarf grasses, or those fit only for pasturage.

Sec. I. *Of the tall growing, or hay grasses.*

The hay grasses for the purposes of agriculture, may be advantageously divided into those of temporary, and those of permanent duration.

Subject 1. *Of tall or hay grasses of temporary duration.*

The most valuable of this division are the biennial, or, as it is commonly but erroneously called, the annual and subperennial rye-grass, the cocks-foot grass and woolly soft grass. Where a crop of hay is desired within the year, resort must be had to those plants which are strictly annual; and none are more suitably adapted to this purpose than the common oat, cut and made into hay when it comes into flower. Indian corn and millet are also adapted for this use, sown broadcast, and cut and gathered for hay.

The biennial rye-grass, (Lolium perenne, var. bienne, L.) is almost universally sown in Great Britain, either with or without clover, among corn crops, with a view to one crop of hay the succeeding season. It is preferred to the perennial variety. It prefers a rich loamy soil, but will grow on any.

The perennial rye grass, (Lolium perenne L.) differs from the other in being somewhat of smaller growth, and in abiding for several years, according to the variety, and the soil and the culture. There are many new varieties of this grass, which have been discovered of late years, and one which was not introduced into Britain until 1832, some seed of which was sent to the United States in 1833. All the varieties of rye-grass have been tried with us, but have not been found to succeed well, and in no case that we have heard has the attempt to cultivate them been persevered in. The new variety above alluded to, is termed the *Italian* rye-grass. It has proved highly beneficial in France and Germany. We have sown it twice, in 1833 and 1835. It wore a most promising appearance in autumn, but that sown in 1833 was every plant killed by the winter, as was some sown by a friend in 1834. That sown in the *spring* of 1835, with barley, has withstood the winter, and now, April 18, looks remarkably well. If this grass will abide our winters, it is likely to be a valuable acquisition, but upon this head we cannot yet speak with confidence.

The cocks-foot grass, (Dactylis glomerata L.) known in America by the name of orchard grass, is an imperfect perennial, and grows naturally on dry sandy soils. It is a native of the United States. This grass may be known by its coarse appearance, both of the leaf and spike; and also by its whitish green hue. It is probably better adapted than any other to sow with clover, on lands intended for pasture. Its good properties consist in its early and rapid growth, and in its resistance of drought; but all agree, that to obtain its greatest value, it should be kept closely cropped. Sheep will pass over every other grass to feed upon it. If suffered to grow without being cropped, it becomes coarse and harsh. Both Arthur Young and Mr. Cooke commend it highly, and the latter cultivates it on an extensive scale at Holkham. Col. Powell, of Pennsylvania, after cultivating it ten years, declares it produces more pasturage than any artificial grass he has ever seen in America. After being fed very close, it has been found to afford good pasture after remaining five days at rest. It is suited to all arable soils. It it abounds in seeds, which are easily gathered; but on account of its peculiar lightness, (the bushel weighing but twelve to fourteen pounds,) the seed should be spread on a floor, and sprinkled with water a day or two before it is sown, that it may swell and more readily vegetate. Two bushels of seed are sown to the acre, or half this quantity with clover. The orchard grass should be cut early, except intended for seed, as it diminishes two-sevenths in value, as hay, by being permitted to ripen its seeds. It will bear cutting as early as clover; and the latter swath is very abundant.

The woolly soft grass, (Holcus lanatus L.) is an imperfect perennial, and rather late flowering grass, of a soft unsubstantial appearance, and found chiefly in poor dry soils, but grows on all. Cattle generally dislike it; and though it abounds in seed, it is seldom propagated artificially.

Subject 2. Of tall or hay grasses of permanent duration.

No permanent grass has been found equal to the rye-grass, in Britain, for the purposes of convertible husbandry, but others have been selected, which are considered useful for hay meadows. The principal of these are the foxtail, fescue and meadow grass. In the United States timothy is most generally sown with clover for all purposes; though, as we become better acquainted with them, orchard grass and tall meadow oat will supersede it in a measure in convertible husbandry. The nutritive property of these grasses, of perennial rye-grass, and of that singular grass fiorin, are thus given by Sir H. Davy:

Systematic Name.	English Name.	Whole quantity of soluble or nutritive matter.	Mucilage or starch.	Saccharine matter or sugar.	Gluten or albumen.	Extract, or matter rendered insoluble during evaporation.
Festuca loliacea,	Spike fescue grass,	19	15	2	..	2
Holcus odoratus,	Sweet scented soft “	82	72	4	..	6
Anthoxanthum vernum,	Sweet scented vernal	50	43	4	..	3
Alopecurus pratensis,	Meadow foxtail gr'ss	33	24	3	..	6
Poa fertilis,	Fertile meadow gr'ss	78	65	6	..	7
Poa trivialis,	Rough meadow gr'ss	39	29	5	..	6
Cynosurus cristatus,	Crested dogstail gr'ss	35	28	3	..	4
Lolium perenne,	Perennial rye grass,	39	26	4	..	5
Agrostis stolonifera,	Fiorin,	54	46	5	1	2
	Fiorin cut in winter,	76	64	8	1	3

Of the fescue grasses there are three species in the highest estimation as meadow hay grasses, viz: the meadow, tall and spiked fescue. The F. pratensis, or the meadow or fertile fescue grass, is found in most rich pastures in England, and is highly grateful to every description of stock. As a hay grass it loses two-thirds by being left uncut till the seed is ripe.

The tall fescue, (Festuca elatior,) is closely allied to F. pratensis, except that it is larger in every respect, its produce being nearly three times greater than either of the other varieties. It is indigenous in the United States. It appears by the Woburn experiments to be a first rate grass.

The spiked fescue grass resembles the rye-grass in appearance, is considered superior to it either for hay or pasture, and improves in proportion to its age.

Of the fescue grasses, the purple, *(F. rubra,)* the hard, *(F. duriuscula,)* floating *(F. fluitans,)* and perhaps some other varieties, are indigenous in the United States, but they have not been particularly recognized or cultivated artificially among us; nor have their seeds been vended in our shops.

The meadow foxtail grass, (Alopecurus pratensis,) possesses the advantages of early growth, and its product and nutriment are pretty abundant. It almost invariably constitutes one of several kinds, which are sown together by the English farmers for pasture; and affords withal a tolerable crop of hay. It shoots very rapidly after mowing or feeding, and produces a plentiful after swath. It does best in moist soils, whether of loams, clays or reclaimed bogs. It abides nine or ten years. Sheep and horses have a better relish for it than oxen. Eaton says this grass grows in Pennsylvania and about New-York. It is a desirable variety on a farm, as its seeds, which are abundant, ripen early, and spread over the meadows.

The great or smooth stalked meadow grass, the spear grass, or June grass of America, *(Poa pratensis,)* is distinguished by its height, smooth stem and creeping roots. Sale says it is the best of all grasses. All animals eat it, and it affords the best hay and richest pasture. It abounds in all our grounds, without the trouble of sowing.

The roughish meadow grass, (Poa trivialis,) is a native of the northern and middle states. It resembles the preceding species; but while this delights in moisture, and in situations that are sheltered, the spear grass is partial to dry pastures. On drawing it between the fingers, *this* feels rough, while the other is smooth. It is however suited to good moist loams and clays, and it multiplies much by seed as well as root. On grounds suited to its growth, which Salisbury denominates low wet soils, consisting of heavy loams and clays, it possesses, he says, all that is necessary for either pasture or hay.

The above are *six of the best* British grasses for either dry or watered meadows. They are sown in various proportions with clover and rye-grass.

As hay grasses adapted for particular soils and situations, the catstail or timothy, floating fescue, and fiorin grasses have been recommended. The two last, although indigenous, have not hitherto been artificially cultivated in the United States; but the former is very extensively employed in the north and east.

The catstail, or timothy grass, (Phleum pratense,) is often denominated in the east *herdsgrass.* It is indigenous, and grows in both wet and dry soils. This is one of the most nutritious grasses that is cultivated; and our experience teaches that it is peculiarly adapted to our climate, and to the wants of our farm stock. And it should not escape the observation of the farmer, that by the experiments of Sinclair, (see table) it affords more than double the nutriment when cut in the seed, to what it does when cut in the flower. In tenacious, moist and strong soils, it is entitled to a precedence, perhaps, over any other species of grass. Yet, for the reasons already stated, it is not so well adapted to be cut with clover, for hay; while the small product of the after swath in our dry hot summers, compared with that of some other grasses, shows that it ought not to be relied upon for pastures. Another consideration which renders this grass particularly worthy of cultivation, is the seed which it affords, and which may be saved without greatly deteriorating the value of the hay. From ten to thirty bushels of seed may be taken from an acre of this grass, which of itself, at ordinary prices, affords a handsome profit on the crop.

The floating fescue grass, (F. fluitans,) grows in rich swamps and marshes on large streams. It is found near Philadelphia, New-York and on the borders of the Hudson. It is greedily devoured by every species of farm stock, including geese and ducks. Yet we do not find that any attempt has been made to propagate it artificially.

The water meadow grass, (Poa aquatica,) is a coarse strong growing grass, found in fens, swamps and ditches, often with the catstail. It gives a great product, and is grateful to most animals, but has not been cultivated.

The fiorin grass, (Agrostis stolonifera,) has within a few years been brought into notice in Great Britain, by the persevering exertions of the Rev. D. Richardson, who particularly recommends it for mountainous districts, where other grasses will not thrive. It requires a moist soil, and does well on cold clays and bogs. The peculiar value of the fiorin arises from the concrete sap lodged in its numerous joints. It suffers less diminution of bulk and nutriment by frosts, than any other grass; and of course is well adapted for winter pasture. The fiorin is propagated by stollens or roots; the ground being previously drained, and ameliorated by one or more root crops. The surface is made smooth and clean, the strings or roots are then strewed over it, and a compost, consisting of parts of bog ashes, lime and loam, spread over, sufficient to prevent the roots being blown away. There are several of this family which grow naturally in the United States, one of which, the couch, squitch or quick grass, is too well known to require a description.

The preparation of the soil, and the sowing of the usual meadow grasses, differs in nothing from clover and rye-grass. The after treatment of dry meadows, including the making of natural hay, will be found in the preceding chapter on the management of grass lands, and that of watered meadows was naturally given when treating of their formation.

DRAINING.

We have spoken in high commendation of the system of draining in Scotland. We find it asserted in the last Edinburgh Quarterly, that a thoroughly drained parish does not exist in Scotland, if there be even a thoroughly drained farm. Yet the writer adds:

> "It *is* the most perfect system in existence. And *it* has *made* Scotland to be admired and envied by the world. Much of this perfection and state of admiration and envy in which Scotland is held, must be attributed to draining, partial as it has been. Though silent and secret in its operations, like wholesome medicine, draining has renovated the constitution of the soil, and suffused a healthful bloom over the face of the country. But since partial draining has effected such great and pleasing effects, what may not be effected for Scotland, by thorough draining."

As having general application in all northern latitudes, and under a belief that draining presents one of the greatest improvements of which our husbandry is susceptible, we transfer from the Quarterly, a statement of some of the evils which result from the want of draining, and the directions for remedying them:—

> "When the rain falls on the ground, part of it runs off into ditches, and thence into rivers; but the greatest part is absorbed. Plants consume much of this absorbed water; some of it descends into the bowels of the earth, and some only as far as the superior stratum of alluvium and rock, by which it it repulsed to a lower level, where it afterwards finds its way to the air in springs through the cultivated soil, and thence into rivers; but a greater portion of is only descends as far as the subsoil, which, if impervious, retains it. That which makes its appearance in springs, is generally easily led away, in drains made for the purpose. Much skill and capital have been expended in this species of draining in this country. The benefits are, that few *springs* are now to be seen in cultivated lands, and it is likely those benefits will be permanent. What flows into rivers, is ready to be evaporated again into the atmosphere from the ocean, and returned to the earth in rain. But that which is retained under the soil, in improved layers of earth, remains to effect melancholy mischief. While hidden water remains, manure, whether putrescent or caustic, can impart no fertility to the soil; the plough, the harrow, and even the roller cannot pulverize it into a fine mould; the grass can contain no nutriment for live stock, as the finer sorts disappear, and their places are usurped by coarse aquatic plants; the stock can never receive a hearty meal of grass or straw from land in such a state; they are always hungry and dissatisfied, and of course, remain in low condition; the trees acquire a hard bark, and stiffened branches, and soon become the prey of innumerable parasites; the roads in the neighborhood are constantly soft and rutted; the ditches and furrows are either plashy, or like a sponge, full of water,--suitable receptacles for the newt and frog; the circumambient air is always damp and chilly, and from early autumn till late spring, the raw hoar frost meets the face like a wet cloth, morning and evening; in winter the frost incrusts every furrow and plant with ice, while the snow lurks in crevices behind the sun, till late in the spring—fit feeding grounds of the wood-cock and snipe; and in summer, musquetoes, green flies, midges, gnats and gad flies, torment the cattle, the laborer and his horses, from morning to night, whilst the sheep get scalded heads, and are eaten up by maggots, during the hot blinks of sunshine."
>
> "The kind of draining which would be most effectual, is not difficult to choose. The greatest obstacle to fertility, is the stagnant water, spread extensively upon a tenacious subsoil; and the only kind of draining which is efficacious for its removal, is not the very deep and distantly placed drains, which are admirably suited to the removal of springs or *spouts*, as they are called, whether superficial or deeply hidden, but the more shallow drain frequently repeated, for deep drains at considerable distances, cannot draw water at those distances, from impervious subsoils. The depth and the distance between the drains, depends entirely on the impermeability of the subsoil. But it is easy to fix the *minimum* depth. No kind of drain, on any pretext, ought to have a smaller depth of stone than eighteen inches, nor a smaller depth of earth above them, than one foot. The width should allow a man to work freely in them. The distance between the drains, has been fixed at the breadth of a ridge, that is, in every furrow. When it does not exceed fifteen or eighteen feet, according to the tenacity of the subsoil, the distances may be considered to be proper. Much has been urged in favor of making the drains up and down the declivity. We confess we see no particular charm in the perpendicular position; on the contrary, we see many objections to it. We hold it to be a maxim in draining, that rapid descents of water, in drains, is incompatible with the maintenance of good workmanship. Water descending rapidly any where, gutters the ground, and so it will in any drain. Besides, the perpendicular position is not the most favorable for intercepting the water in its descent; because it is very rare that the declivity presents only one declination; it is almost always attended with two—one up and down, and another from side to side, in the horizontal direction. Down such a declivity, the water will take a diagonal direction, guided by the degree of the natural declination. Now it is as obvious as any demonstration in dynamics, that drains placed in parallel lines, down the face of a declivity, having a two-fold inclination, that is, diagonally, will afford a much more easy passage for a current of water, than any other direction. The more easy the egress of the water, the more gently will it run away, and the more effectually will it dry the land. The only reason for placing drains up and down is, that the furrows are so placed; but it would be better to make the ridges run diagonally, than allow water to run quickly in a drain, in a perpendicular direction. Small round stones, or broken stones, should, in every case, be preferred to tiles, and they should be carefully placed by the hand. It is only when stones cannot be obtained, but at great labor and expense, that tiles should be used.
>
> "This species of draining possesses the advantage of being applicable to any kind of soil; and it will certainly relieve any soil which is affected with any surface stagnant water. If generally practised, it would effectually drain the whole country, and remove the chief obstacle that exists to the perfect fertility of the soil. Were the soil thus fertilized, the produce of the country, whether in corn, straw, green crops or pasturage, would be increased many fold. Wheat and live stock would then be so abundant, and of course cheap, that every laborer would then be enabled to consume wheaten-bread and butcher's meat. Nor is such a national scheme of improvement chimerical. One sheep additional kept, or one quarter of corn more raised, on an acre, would add millions a year to the wealth of the country."

CORRESPONDENCE.

INQUIRY.

Wheatland, Monroe county, March 15th, 1836.

Mr. J. Buel—Sir--Having but a slight knowledge of farming, and wishing to improve both my farm and capital, I take the liberty to request information through the Cultivator, expressly for my own interest; and now sir, on the first day of April I shall come in possession of a small farm of 125 acres of land; 80 acres of which are improved, and all, or nearly all, dry land. The soil of said farm is a dry hard gravelly or stony, or what is generally in this town termed a limestone soil. The information I wish to obtain, is in what manner to proceed to pay for the farm off of the farm in the shortest time possible, having to pay $37 an acre for the land. If you will give your view on the above subject, you will confer a favor on your most humble servant and subscriber.

A. B. S.

The Conductor's views.--That our correspondent is sincere is evidenced by his having paid postage;—that he *can* learn is indicated by his asking advice—for many think there is nothing for them to learn—under these circumstances he shall have our advice. The location and description of the soil show that the farm is good wheat land. The requisites are, that A. B. S. be industrious, prudent and persevering; and that he always examine his crops *before sunrise.* He may put 40 acres in wheat next fall, having prepared the ground well, and sow clover upon it next spring, at the rate of ten pounds seed an acre, and cover it by passing a light harrow (a short wooden toothed one will do) over his wheat crop. Sow other 40 acres, and stock it in like manner in the fall and spring of 1837. The first 40 acres may be put in wheat again in 1838, and the second 40 acres in 1839. These four crops should average 30 bushels the acre, which, at $1 per bushel, will more than pay for his land, and give him the use of 40 acres to pay his labor and support his family. In the mean time he may learn from those who do better around him: and when he has paid for his farm, let him discontinue alternating wheat and clover, lest he should exhaust his land too much of its fertility. If he successfully follows these directions, he will not then stand in need of our advice.

PIGS PROFITABLY FATTENED ON GRAIN.

It is a mooted question, whether these devourers can be kept and fattened on grain for market, so as to leave a small profit to the producer.

The Rev. Mr. Watson, pastor of the Lutheran Church at Cobleskill, has furnished us with an experiment to the point. If the conductor of the Cultivator thinks it worth a place in his paper, it is at his service. The above gentleman is a shrewd economist, and does not think it beneath him to pay systematic attention to the small concerns of life.

He says, "I purchased two pigs December 23d, 1834, for $6.50, they then weighed 316 pounds, they had been dropt some time in the preceding April; they were immediately put in a warm pen and fed on rye or corn-meal, six quarts a day in three feeds, with regularity and precision, until October following, then they were fed nine quarts per day about one month, then raised to twelve until the 7th of December, 1835, when they were butchered; they then weighed 1,138 pounds. They were fed on grain 349 days, they drank the refuse milk of two cows, and had a few weeds from the garden. If we allow one-third offal in dressing, they gained in live weight a fraction under three and half pounds per day, and cost about ten cents per day. They ate fifty-five bushels of rye and corn; the grain was ground fine and the toll taken out; in cold weather it was scalded and fed warm, in warm weather fed dry and milk poured on it in the trough; none was ever made into a swill and fermented. The grain cost 5s. per bushel=$34.37½; value of pork at $7 per hundred=$79.66, deducting first cost and grain, it leaves a balance in favor of the producer of $39.28½."—Tolerably fair pay on two pigs. It seems this is not a solitary case of his success: he says he has pursued the same course for many years, and with much the same results. The notoriety of his success in making pork, though not a farmer by profession, and his parsonage only contains one acre, induced me to beg the details of his plan for the readers of the Cultivator.

The rationale of his practice seems to be, firstly, to give a sufficient quantity of the most nutritious food, to keep them in a growing contented condition, that they may lie down and rest, and not work off their flesh, or loose what they already have. Secondly, to keep them at all times dry, clean and comfortable, never letting them to the ground to feed and wander about, or to wallow in dirt. This seems to cross the disposition of a hog, but I think I never saw any so content and happy. He thinks such feed contracts the maw and makes it incapable of eating large quantities, like hogs that are summered on coarse food. WM. WALKER.

VALUE OF AGRICULTURAL PUBLICATIONS—EXPERIMENTS WITH POTATOES.

New-Bedford, Pa., February 25th, 1836.

J. Buel—Dear Sir—I read your paper with intense interest; in my opinion it is extremely well calculated to further and advance the object of its publication; it pleases me to see its wide spread circulation. We, in this section of country, very much want information on this all important subject. A paper of this character, so ably conducted as the Cultivator, is truly a desideratum, and I feel and know that every farmer should be in possession of this or of some other agricultural periodical. A great writer observes, and who can dispute it, that the state of civilization of any country is to be fairly estimated by the advance agriculture has made, the liberty which the fair sex enjoys, and the respect paid to the worship of the Divine Being. We may add, that not only the happiness of the people, but the wisdom of the government, is proved by the above remark. There are single communications in the Cultivator, which I esteem of more value than a year's subscription. I need not enumerate them; the extracts taken from works of celebrity are valuable; the selection for the young men's department, and prudential maxims inculcated, are excellent. I wish you to go on and persevere, in the laudable work you have undertaken. Be liberal sir, in your remarks and strictures upon the communications you receive. This is the way to elicit truth and combat error—the way to break down those impregnable prepossessions and prejudices under which the farmer labors, more than any other class of society. I cultivate a small farm; my means of improvement are not ample; yet I am ambitious to work it up to its zenith. The intelligence communicated through the columns of the Cultivator is amply assisting me, and yet it is subjecting me to more work and more expense. I have many things to ask and questions to propound, but the limits of this letter forbids.

In the first volume, there is a piece taken from the Maine Farmer, if I recollect right, on the comparative merit of planting whole or cut potatoes. The experimenter put two whole potatoes in the hill; against these he put four sets of cut potatoes, a very unequal match. He used twenty-three bushels more of whole potatoes than of cut ones; he might as well have planted this excess over the cut potatoes on a separate acre of land, and brought the produce to bear against the four set bills. A moderately large potato I cut into five or six pieces—these I put into a hill; I put one potato in the hill, which would cut the same number of sets; in this way, I use equal quantities of seed, whether whole or cut. In the experiments here alluded to, there was no equality in the seed. Had the two potatoes been cut, they would probably, on an average, have given ten or twelve sets; the produce of potatoes is in the ratio of the seed put in; that is, increase the quantity of seed, and you increase the quantity of potatoes, on any given piece of ground; to a certain extent this is true. The stopping points has not been ascertained by experiment.

This question ought to have been settled long ago. Every farmer who cultivates this plant, if he has made any observation, must know that the whole potatoes are the best for seed, and will give the greatest results, either in weight or measure, when the quantities of seed are equal. I would ask, when our fields are overrun with sorrel, does it not indicate the absence of calcareous earth? and would not its presence eradicate the nuisance, or neutralize the acid? The clay marl you recommand, is extremely well adapted to your farm, it gives tenacity and fixedness. Would not lime be better on ours, which has a subsoil of tenaceous clay?

I am sir, with great respect, yours, WM. JOHNSON.

Note—Sorrel indicates the presence of oxalic acid, which lime or marl will neutralize, or absorb. Lime, or silicious or shell marl, is best suited to our correspondent's soil.—*Cond.*

BEES MAY BE KEPT IN CELLARS IN WINTER—REQUIRE AIR.

Lebanon, January 23, 1836.

J. Buel, Esq.—Dear Sir—I would beg leave to solicit the privilege of presenting a few lines, which I have been inclined to think, may be useful and interesting to those who have had but little experience in the principle of cultivating bees, and who would also deem it a favor to be reminded of the danger to which that article may be exposed.

It is a fact, that the principal losses sustained, are for want of proper care and judicious management. After trying the experiment to my satisfaction, I would just recommend the following course, in order to preserve them during the winter. Instead of allowing them to remain out of doors, as many are accustomed, it is far more desirable to put them in a dry cellar, and moderately warm, likewise, so as to guard as much as possible against the unpleasant consequences produced by bad, mouldy comb. This practice is preferable on two accounts. They are less liable to die, do not require so much honey, and are much more inclined to swarm the following season. Notwithstanding having pursued this course of practice, yet I have frequently met with losses, and have not, till recently, been satisfied with having ascertained the principal cause. It is just about one year ago now, on passing an examination, as usual, I found a number of dead swarms of bees; my curiosity was again excited; I raised one of the hives and viewing it closely I found the comb neat and clean, and a large supply of dead bees lying principally on the bottom of the hive, with a sufficient quantity of honey to have supplied their wants a whole year. On removing those found dead, from their several shelves, I happened to place a lighted candle near the mouth of a hive of dead bees, and then raising it gently, in order to look in, my light was immediately put out, which contributed to my understanding, that the evil effects had been produced from what we sometimes call stagnated air. This experiment, although accidentally performed, served to render it certain that more air was necessary in order for the safety of others. Since the circumstance occurred just related, I have had excellent luck; and do believe that bees may be wintered apparently with light losses. Since in autumn, it becomes natural for bees to be more quarrelsome, especially as soon as the flowers are decayed, it is my practice to watch them closely, and immediately after I discover an assault, to move the hive liable to be conquered, into a dark cellar, which invariably produces the desired effect of forming between the two parties, a principle of reconciliation. I practice this course until at length it becomes necessary to carry them all in from the cold weather. Placing them on a shelf, one deep, am very carful to open a communication for them at the top and bottom of the hives, so as to have a free circulation of air, and I am happy to say, that from this course, I have experienced as yet a favorable result. I have lost but two swarms out of forty, that had sufficient quantity of honey, and I do not anticipate the loss of any more this season.

I submit these few brief remarks to your consideration, and relying confidently that they will be disposed of according to your better judgment.

Respectfully yours, C. C. GRAY.

CURE FOR THE SCAB IN SHEEP.

Mr. Buel—Sir—In a late Cultivator, you mention the diseases to which sheep are subject, and many things considered beneficial to many disorders. Having suffered much from the scab in my small flock, four years ago this winter, I thought it might be useful to some of your readers to state my experience in contending with this destructive complaint, and the result. The first of September, I had 200 merino sheep, in good flesh, but thought symptoms of the scab were discoverable in two or three. I went a journey to Ohio, and returned the 3d of November. When I came home, about 40 of my flock were in a situation sickening to behold. Knowing it was the scab, and being experimentally ignorant of the proper remedy, I resorted to books and the various recipes generally used. Among the rest, I tried the mercurial ointment, recommended by Sir Joseph Banks, without the desired effect. The disorder increased and baffled all my exertions. The sheep began to die, and at shearing time, more than 100 were dead—after I had taken unwearied pains, and spent much time, and several dollars in money for medicine, and had lost more than half of my flock, I felt almost ready to abandon the wool-growing business. All my remaining sheep appeared more or less under the influence of the disagreeable disorder. But having heard of tobacco, and this being almost the only remedy prescribed and not tried, I made use of it, and with perfect effect. The modus operandi was this. I bought fifteen or eighteen pounds of cheap, shilling tobacco, cut it to pieces to get the strength easily out, put it into a large kettle and boiled it as long as I thought necessary. I then took a forty gallon cask, with one head out, sawed the end so as to nail a wide board on the edge of the cask, and the other end of the board was fastened to the yard fence, enough higher than the cask to have the liquor run back into the cask. The tobacco liquor put into the cask hot, as soon as cool enough not to injure the sheep, put into the liquor about a gill of spirits of turpentine; this should be repeated about once to every twelve or fifteen sheep; if all put in at once, a few of the first put into the cask will catch the whole of the turpentine. Take the sheep by the forelegs, and put him in tail foremost, as you would a pig to scald, the liquor coming, as you crowd him down, up to his head and ears; turn him round in the cask, to have the liquor touch the sheep all over. I had many of mine ducked head under, then pulled them up on the board, and held them to drain a few minutes, and let them go. Having served them all in this way, I turned them to pasture, and have not lost a sheep since, unless by accident. If done effectually, it kills all the ticks. In shearing, the next year, we discovered only two ticks. The lambs were dipped as well as the old ones. The sheep were all fat the next fall, fit for mutton. I fully believe this mode of treatment will prevent the disorder, make the sheep more healthy, the wool better, and by the improvement of the flock, pay the expense and trouble many times over. Some think the scab cannot be cured, when the fleece is on in cold weather; others mention the expense. For my part, I believe the cure can be effected in moderate weather, in winter, though I never tried it. It will, in this case, be necessary to use a much greater quantity of tobacco; but what is the expense to the value of the sheep? If the complaint comes on in the early part of winter, the wool is poor, and the sheep will die before the next summer, if not cured. And furthermore, one infected one will ruin the whole flock. I think farmers are too backward generally, in communicating the result of their own experiments, which they are willing to vouch for, even under oath. Particularly should the mode of using medicine, be communicated in detail, in a plain, intelligible manner. The sheep is so useful and necessary an animal, that every man who owns or has the care of them, ought to be attentive to their comfort in sickness and in health. If they are kept well, they increase rapidly; if neglected, they are often the victims of wild animals, as also of various diseases. The men who have been regularly bred to the profession of shepherds in this country, are scarce, and although there are some who are truly deserving the name of good shepherds, they are not easily obtained. Our flocks generally being small, will not enable our common farmers to keep a man exclusively to attend to his sheep, with profit. Every farmer, therefore, for his own interest, as well as for the benefit of his country, ought to keep sheep, and to be able to prescribe for them when sick.

Most respectfully yours, URI TRACY.

THE CONSTRUCTION OF BARNS AND THE WINTER MANAGEMENT OF STOCK.

Mr. Editor—Having had access to a few numbers of the Cultivator, and feeling a deep interest in the subjects there treated of, I have concluded to become one of your subscribers.

I shall shortly be under the necessity of building a barn, or barns; and wishing to build on the best possible principle, that is, so as to secure the most value of manure, and keep the largest amount of stock in proportion to the quantity of fodder consumed, I have formed a plan in my own mind, and venture to state it to you for publication, if you think proper; by this means, hoping to have some improvement made upon it, or a better one drawn by some person or persons, more experienced than myself, and communicated through the medium of your paper, that others, as well as myself, may derive benefit thereby. I have been led to conclude, that the usual method of building, is a very bad one. 1st. In this cold section of the country, our domestic animals suffer extremely, a considerable part of the winter; many are lost in consequence, and much more food is required to carry them safely through, than would be if they were kept comfortably warm. 2d. The manure is exposed to drenching rains, and the urine is totally lost, and I firmly believe, that one-half of this valuable article, upon which depends the success of the farmer, is wholly lost. 3d. The lower timbers soon decay, and the barn suffers much injury in consequence thereof. 4th. The profits of fowls are in a great measure lost, or are destroyed by depredators, which readily find shelter under them. The plan I have formed may be applied to a large or small farm.

I should prefer to build on ground descending to the south, say five feet in forty, dig the cellar and stone the east, north and west sides of sufficiet depth, seven, or eight feet; turning the south end of the west wall with a right angle, continuing so far as to form a wall for the north side of the cellar for the second barn, the remainder to be built of timbers, raised sufficiently from the ground, so as to secure them from decay, supported by stones and lime; (this may be supplied by a shed if circumstances require) the floors of both barns being on a level, all double, so as to secure the chaff from falling upon the cattle or sheep below, entering each with the produce, upon the two sides united, which frees us from passing through the yard, which is often unpleasant. The whole space under the second, having the east side open, or nearly so, to shelter cattle summer and winter, and so constructed as to feed upon three sides from above, without descending below. In the cellar of the first barn, which is, say forty feet square, I would erect stalls upon the east and west sides, heading towards the walls, built similar to those built for horses, in width twelve or fourteen feet, leaving a space between the two of twelve or sixteen feet to receive the manure, the floors to be laid so tight that the urine cannot pass through, but conducted to such a place, that it may be readily thrown with the manure. Let the cattle be tied with a rope or small chain, much after the manner of tying horses, and fed from above into suitable cribs or racks, which spaces should be left open for ventilation.

These stalls may be used for horses, or cattle, or readily converted into pens for calves; cows or sheep when dropping their young in cold weather. The walls should be so constructed as to exclude frost to any considerable extent, but to receive sufficient light and air, that it may be well ventilated. In the north end of one row of stalls, let there be a place sufficiently large for the fowls, where they may be kept dry and warm, and with proper attention, they will supply us with an abundance of eggs through the winter. Let the cattle have free access to water without leaving the yard. Let the barns be so placed, that the ends of the roofs come towards the yard, that the water therefrom may be carried from it. Sheds may be erected on the south and east, either temporary, or permanent, as circumstances admit. The yard to be the lowest in the middle, so as to receive all the liquor it contains, and the earth so prepared that it shall not penetrate it. I think we may safely estimate the manure made from this plan, worth double of that made from the same quantity of fodder in the usual manner of spending it, and a saving of thirty per cent, in feeding it to cattle thus sheltered, besides more or less of their lives.

Johnson, March 7th, 1836. Yours, etc. H. WHITING.

NEW SPRING WHEAT.

J. Buel, Esq.—Sir—I send you enclosed a small sample of *Italian spring wheat.* This sample is taken from a parcel I purchased a few yaers since, and is part of the four years crops since the introduction of the original importation. The seed was brought to this country in 1832 by Signor J. B. I. Carbonai, from the city of Florence. Italy. The cask was sold for charges; I bought it, and finding it a heavy and beautiful grain, prevailed with several of our farmers to sow it; the result was most gratifying. Sowed side and side with our country spring wheat, it exceeded it two feet in height, standing on the ground, and yielded double the quantity, weighing sixty-three pounds to the bushel. It has succeeded well every year since, producing from twenty-five to thirty-five bushel to the acre; grows well on every variety of soil on which it has been sown. Very few of our farmers will now sow winter wheat, finding this wheat a sure crop.

Your ob'dt,

Rome, N. Y. March 21, 1836. JAY HATHAWAY.

MODE OF RAISING CUCUMBERS AND MELONS ON CLAY SOIL.

Sherburne, March 22, 1836.

J. Buel, Esq.—Dear Sir—I take a good deal of interest in horticulture, and my most pleasant hours are spent in cultivating a small garden. The soil is a stiff clay loam, resting upon a loose gravel. I carried on sand and manured it highly, but for several years was unsuccessful in my attempts to raise melons and cucumbers. I became quite discouraged and concluded I must give it up; but still thought it worth another trial. I prepared a spot of about forty feet square, by covering it with sand to the depth of six or eight inches, and a heavy coat of manure; it was then spaded about twelve inches deep, and well mixed together. On this spot I made eight hills by digging holes eighteen inches deep, and two and a half feet diameter, these I filled with fresh stable manure (in which was considerable straw,) even with the surface of the ground, well pressed down. I then brought from the woods a load of rich black mould, formed from decayed vegetables; with this was mixed an equal quantity of sand, and the hills covered to the depth of six or eight inches. The seeds were soaked between wet sods of grass, laid near the fire for about twelve hours, and then planted. I put over each a box of eight inches deep, of sufficient size to take four lights of ten by eight glass. In about thirty-six hours after planting, they began to show themselves above the surface. The growth of the plants was rapid beyond any thing I had ever witnessed, and the seed leaves looked like those of pumpkins or squashes. As the weather become warmer, I removed the glass and substituted a covering of single foundation muslin, to prevent the ravages of insects. I succeeded beyond my most sanguine anticipations, and had as fine melons and cucumbers as are grown on Long Island or elsewhere. I have no doubt now that they may be cultivated with as much certainty of success as any other vegetable. There may be many subscribers to your useful paper who would be benefitted by the above information. It is written in much haste, and my time so much occupied, I am not able to revise it. If you shall deem it of any consequence, you are at liberty to make any use of it you think proper.

Respectfully yours, H. N. FARGO.

ON THE PRESERVATION OF TIMBER.

In the year 1801 I built a ware-house on my lot in Union-street, in Schenectady. The cellar was dug about four feet deep, and the stone wall a foot or two deeper. I left no opening for door or window. The floor beams were of excellent pitch pine timber, of twelve by twelve inches, slit, and were six by twelve inches when placed in the wall, and about eighteen inches above the ground. I laid a floor three inch oak plank loose, neither jointed nor nailed, although they were square edge and lay close to each other. Five years after, I observed a jostling in a place in the floor, and raised one of the plank to learn the cause, and found one of the six by twelve beams rotted off, and fallen on the bottom of the cellar. The plank was rotten below, except about an inch sound on the upper side. I lifted the whole floor, found most of the plank rotten, except a shell on the top; and the timbers were rotten, and so decayed, that I took them all out and put in oak, after making windows and a door in opposite sides of the wall. I thought the depth of the cellar would have prevented injury to the timbers, but found it the cause of the destruction, as shavings of pine boards, and pine slivers laying on the bottom of the cellar, were perfectly sound, while the timbers were beautifully ornamented with curtains of white mould, hanging in festoons to nearly the depth of the cellar, as white as snow, very thick, and appeared as if of bleached muslin.

In 1817, I took down an old kitchen on the same lot, the floor had lain on saplings of oak, six or eight inches over, such as are used for scaffold poles. They were bedded in the ground, so that the pine flooring came next the ground, and excluded air. They had lain there from 1794, and both the timbers and flooring were very little injured by rot. I concluded, that a free circulation of air must be allowed, or air must be entirely excluded, to save timber from decay.

If you think the within may be of use to builders, worthy a place in the Cultivator, you may insert it. Respectfully, D. TOMLINSON.

Schenectady, March 24, 1836.

CORN—GRASS SEEDS—MANGEL WURTZEL.

Schenectady, 23d March, 1836.

Sir—If anything in the following communication is worth publishing, it is at your service.

The two last years, corn has been raised in the following manner, on the Mohawk Flats, near this city. If in grass, the land is ploughed and well harrowed, lengthwise of the furrow, without disturbing the sward. The ground is then prepared for planting, by being marked out two and a half feet one way, and three feet the other. The last season, the field was rolled after being planted, with evident benefit, as it made it level. When the corn is three inches high, the cultivator is passed through both ways; and twice afterwards it is used in the same manner; no hills are made, but the ground is kept level. Neither hand hoe nor plough are used, after the corn is planted. Fields manured with coarse manure have been tilled in the same manner. Corn tilled in this way is as clean of weeds, as when tilled in the usual way; it is no more liable to be blown down, and the produce is equally good. It saves a great deal of hard labor, which is an expensive item in the usual culture of corn.—Last October, ten rods were measured out, in two different places, in a corn-field, on grass land—the one yielded ten, the other nine, bushels of ears. In one corn-field, after the last dressing in July, timothy and clover seed were sown, and in the fall the grass appeared to have taken as well as it had done in adjoining fields where it had been sown with oats.

The following is the result of a comparison of your Dutton corn with the common yellow eight-rowed:

1834—*Oct. 22d.*	*Inches.*		*oz.*	*dr.*		*oz.*	*dr.*
One ear of Dutton corn measured	10½	grain weighed	7½		cob	2	½
do. do. do.	11	do.	6½	1	"	1¾	½
do. eight-rowed, do.	10¼	do.	5	½	"	1	1
do. do. do.	10¼	do.	5¼	½	"	1	½
do. do. do.	10	do.	5½		"	1	½

Jan. 14, 1835.—Half a bushel of ears of Dutton corn weighed 20 lbs. The grain when shelled, weighed 15 lbs. 11 oz. The cobs weighed 4 lbs. 4 oz.—The grain measured nearly nine quarts.

Half a bushel of ears of the eight-rowed weighed 20 lbs. 11 oz. The grain weighed 17 lbs. 1 oz. The cobs weighed 3 lb. 10 oz. The grain measured nine quarts.*

Our grass seed is sown in the following manner:—After the oats or barley are about four inches high, the grass seed is sown, and a roller with a bush fastened behind it, is immediately passed over the field, which covers the seed sufficiently, and makes the field very level, without injuring the barley or oats, which in three or four days are up as straight as ever.

Last spring half an acre of lucerne was sown in this manner on barley, and when the winter commenced, it was as thick as it could stand, and nearly two feet high, while the common red clover in the same field was only one-third of that height.

On the same farm, the last season, six hundred bushels of mangel wurtzel were raised from half an acre and eight perches of land, being at the rate of 1,088 bushels per acre. The ground was manured with coarse manure; three pounds of seed were sown in rows, two feet apart, and tilled with the cultivator only. The hand weeding in the rows was amply compensated after midsummer, by the thinnings out, which kept eight pigs till corn was ripe.—The expense of cultivation was about the same as if the ground had been planted with potatoes.

Respectfully yours,
CHARLES H. TOMLINSON.

ON THE UTILITY OF SAVINGS BANKS IN THE COUNTRY.

Hamptonburgh, Or. Co. Feb. 17, 1836.

J. Buel, Esq.—Sir—Having for a long time been of the opinion, that it would be a desirable thing to have established in the several towns of the state, Banks for Savings, where the poor and industrious of all classes, the mechanic, the day laborer, the house servant and many others, could safely deposite their earnings, and where they could receive an interest on their annual accumulations, I venture to make the suggestion through the columns of your publication. It strikes me, that it would hold out strong inducements to all to be more provident and industrious. At present, the greatest number of some of the classes referred to, spend as fast or faster than they earn, in useless extravagance, or in some other way still more objectionable, and consequently always remain poor, and in case of sickness or accident, become a public charge. Whereas, could they conveniently and safely deposite in a Savings Bank, all surplus earnings, a large proportion would probably, when made acquainted with its object, avail themselves of its advantages, and thus become useful members of the community. I am deeply impressed with the idea, that much good would result from the establishment of such institutions, and have thus imperfectly and crudely made the suggestion, with the hope that some able and influential writer will advocate the measure with his mind and pen.

W. W. J.

Remarks.—There is no doubt that Savings Banks would be as beneficial in the country as in the city, where these advantages are manifestly great. But there are two serious difficulties—that of inducing responsible persons to take charge of such banks, gratuitously, and the difficulty of making investments of the moneys deposited.—*Cond.*

MERINO vs. SAXONS.

Mr. Buel—Dear Sir—The recent discussion that has appeared in your paper upon the subject of "Old Fashioned Merinos," I think cannot be totally void of interest, especially to the wool growing portion of community. The discussion has called forth remarks from those who still retain some of the remains of the Merino blood, as well as from those who are still breeding a race of sheep denominated the Saxony, who seem to be sincere in their belief, that the Saxony sheep are the best calculated for a flock for the farmer. But, sir, happening to be a practical farmer and a wool grower at the present time, and having a flock of sheep composed of a few "old fashioned Merinos," the remainder Saxonys, permit me to offer a few plain remarks upon the two breeds of sheep. Having been in the farming business but a year or two, consequently my knowledge cannot be very extensive, but what I have learned respecting sheep husbandry, has been principally by experience, and notwithstanding the labored communications that have appeared in your paper, in support of the Saxony breed of sheep, yet I am *thoroughly convinced*, that the "old fashioned Merino," or as one of your correspondents has expressed himself, the "American Merino," must be the breed of sheep from which the farmer and wool grower can expect to realize their income. When I first turned my attention to farming and to sheep husbandry, there was a great fever throughout the country, to obtain the Saxony sheep, and to quickly dispose of the Merinos, for we were repeatedly told that from the former we could realize double the profit; consequently in selecting my flock, I did not purchase any but what was of the pure Saxony breed. The loss that I have sustained is very great, and my neighbors have all shared the same fate with me. I am now disposing, as fast as possible, of my delicate Saxonys, and supplying their places with strong and healthy "old fashioned Merinos." We have repeatedly been told, through the medium of your paper, (and certainly with a great deal of truth,) that the Merinos are a hardy race of sheep, strong constitution and exactly fitted for our cold climate, while the Saxonys are a delicate, tender breed of sheep, weak constitution, and unable to withstand the severity of our northern winters. I am confident that the farmer loses nothing in giving his flock of sheep grain during the winter, but he will be the gainer, for in his Merinos he will perceive an improvement in their looks; but in the Saxonys, notwithstanding he may give them grain, yet in the spring they begin to loose their flesh, their appetites are gone, and they become weak and sickly, and this too at a time when they ought to be in good heart, to be enabled to take care of their young; but they being in such a miserable condition, their lambs die, and if the mother survives the wool is checked in its growth, and consequently does not shear but about two-thirds of a fleece. Thus you see, the farmer loses his lambs, together with a part of his fleece. This is not the result of mismanagement—for let a flock of Saxony sheep receive the utmost care and attention possible, in a measure the condition of the flock will be similar to what I have said above. The subject of sheep husbandry is, at the present day, one of great importance, and I sincerely hope that we shall see many more communications in your paper upon that subject.

Yours, &c. G. T.

SHEEP HUSBANDRY—No. V.

Mr. Editor—In the February number of the Cultivator, I unexpectedly noticed the compliment on my "rounded periods." Being now only a plain practical farmer, I had not attended particularly to their configuration, holding the subject matter more important than the manner. I hope no *critic* will attack the subject matter, for I am ill disposed to controversy. As F. is so far removed from A. B., I feel unwilling to approximate in a controversial way upon a subject of common interest. This thing ought to be conducted otherwise.

I have not yet arrived at the point of embracing the whole medley of the first importation of Spanish sheep, Escurial, Montaru, Gaudaloupe, Paulaur, Negretto, &c. At that early period we were but imperfectly acquainted with their distinctions; and mainly influenced by the importance of the acquisition of Spanish sheep. And then to have this business so deserted, and these sheep so degraded! as to be even rejected by the *butcher*; and now, because the price of wool has advanced the price of sheep, to say, give us our "old fashioned merinos."

If we go to the drover or the butcher, they will reply, they were not worth preserving. Gone, gone.

If we could have them as they came from Spain, they would be an admixture of all flocks; this to my mind is not "*distinctive*."

Mr. Gilbert, member of the National Institute of France, whom I have formerly quoted, in speaking of the stock from which the Rambouilet was derived, says, "but having been chosen from a great number of flocks, in different parts of the kingdom, they were distinguished by very striking differences which formed a medley disagreeable to the eye." We hear of no disposition in the managers of Rambouilet to "retrograde" to this old fashioned period.

Mr. Jarvis has done this thing in better style; he has told us in the Cultivator, No. 10, page 155, that he has kept his Saxony, Escurial, Paulaur, &c. separate—and with great frankness says, "there is very little difference between my Saxon and Escurial fleeces." And further observes, "my Merinos carrying much heavier fleeces than in 1810." Whence then this feverish sensitiveness to "old fashioned merinos"? If gentlemen, with the discriminating views and practice of Mr. Jarvis, will take sheep, of the different Spanish flocks, and the Electoral Merino; preserve them pure, keep them distinct, then might they present their experience for public examination. Otherwise I must consider "*old fashioned merino*" as even a bad "barn yard phrase."

If any one had asserted that the Paulaur is a large, hardy sheep, a heavy shearer, and for those who keep a few sheep, or bestow little care; and particularly for those who manufacture their own wool, is preferable to the Electoral or Escurial, I should not have controverted it, in my own "chimney corner."

All those who are particularly devoted to antiquity and principled against improvement, would be unmolested in this harmless enjoyment, unless they place themselves in the way of the grand progress of modern improvement, and discrimination. When all the other occupations of mankind are evincing their skill and advancement, I should feel ashamed of *farming*, if it was necessarily so low as to remain stationary! much more to be compelled to "retrogade."

The term Saxony sheep, and old fashioned merinos, are both too indefinite to satisfy a good shepherd, which I have endeavored to illustrate in my preceding numbers. I intend to hold myself to the last, opposed to carrying refinement too far, in any shape, or under any denomination. From my peculiar locality, I availed myself of the opportunity of procuring by selection, Saxony sheep and merinos, of most of the Spanish flocks, and of rescuing the remnants of some choice flocks from the knife of the butcher.

An opinion has arisen in the minds of some, and undoubtedly an honest one, that Saxony sheep have ruined our flocks. I would refer them to my first number in the Cultivator, to show that all the sheep denominated Saxony, ought not to be admitted as an improvement. I have had among my Saxony and Escurial, individual sheep exceedingly fine; but with open, thin fleeces, delicate and tender, flat-sided and poor nurses. And I find them equally among both. These I exclude from propagating. And no flock of merinos of any description can be sustained or improved in any other way.

I am confident that it will be ultimately acceded by those who now doubt, and those who now controvert the opinion, that the Electoral close woolled merino, is an improvement on the Spanish. And I am mainly desirous to excite our shepherds and growers of wool, to the use of the same means which have elevated the Electoral and Rambouilet flocks. And to me the way seems open. In estimating the difference of latitude between Saxony and New-York, in whose favor would it fall? Are we better or worse shepherds? They rear lambs and produce fine wool for exportation.

My Saxony sheep are subjected to the same exposure with my merinos, which they have sustained equally well. They have thick heavy fleeces, averaging with my merinos, but evidently and decidedly finer and more elastic. One of my Electoral bucks last year, sheared five pounds of washed wool. They were not during the last severe winter sheltered more than five nights. We do not farm in exotic green house style in this part of the great state.

All that can be reasonably asked of the editor or the public, is candid examination and patient experience. We are all aiming at one object, and why should we fall out by the way?

Respectfully yours, F.

P. S. I suppose the admission of stricture and animadversion necessarily involves the privilege of temperate reply. With this I think I shall close, and leave this subject to those who like controversy better than myself.

---

* The *important* inquiry is, which variety produces the most grain in a row, or on an acre—which ripens earliest?—*Conductor*.

Note—We regret this determination of our correspondent, and would request a continuation of his favors on this or other matters of rural import.—*Cond.*

A HINT TO FARMERS—GREAT VALUE OF APPLES.

J. Buel,—In the fall of 1835, I gathered about 150 bushels of good sound apples, of different kinds, and put them into my cellar, for the purpose of feeding them out to my stock of cattle and pigs, to see what effect they would have. When hard weather commenced, I had two cows that gave milk; I put them into a stable, and commenced feeding the two cows with a half a bushel of apples to each cow per day. I charged the boy that milked them, to see if the cows increased of their milk, and the third day the boy says that the cows gave almost double the quantity that they did before I fed them the apples; and the young woman that had the charge of the milk, says that the butter that was made from the milk of those cows at the time of feeding them apples, was of a fine flavor, and a fine yellow color.

I likewise commenced feeding them to my pigs; I fed about one bushel a day to thirteen pigs, with a small portion of corn, and I now defy the state to bring thirteen as good pigs as mine, that has had no better keeping.

I had gathered about 250 bushels of good sound apples, and put them into a good bin in my carriage house, with the intent of making them into cider; but before I got ready to make them into cider, the cold weather came on, and all my apples froze. I immediately covered them with blankets, and they remained in that situation till the thaw, in the latter part of December; I then commenced feeding them to my stock of cattle, which consisted of twenty-two head and two colts; I fed them about ten bushels per day; I soon found that my cattle would not eat half the quantity of hay that they did before I commenced feeding them apples, and when the apples were gone, I could see that my cattle had gained in flesh, and looked better. I think that my apples that I have fed out to my stock of cattle this winter, has been worth to me more than though I had made them into cider and sold it for one dollar per barrel. This from yours, &c.

Canaan, Feb. 16, 1836. ELEAZER CADY.

Note.—A gentleman, of Montgomery, informs us that he has derived like benefits from storing his apples, and feeding them in winter, to his stock; and that a horse which had for a long time been afflicted with the *heaves*, and to cure which, every previous prescription had failed, has been restored to entire health by this apple diet.—*Cond.*

TO PRESERVE FENCE POSTS—CORN CROP—CORN CRIB—OATS—APPLES FOR HOG FEED, &c.

Mr. Buel—I offer a few remarks for the Cultivator, should you deem them worthy of publication. My choice is rather to learn by the wisdom and experience of others, than to assume the capacity of a teacher: if, however, it may be in my power to communicate a serviceable hint or two to my brethren of the plough, it will be no less a pleasure than a duty to impart it. It must be evident to every farmer, that in order to the successful tillage of his lands, *good fences are indispensable.* The increasing scarcity of fencing timber is is a powerful reason for using measures to extend its durability. I will here state my usual practice in setting fence posts, for the last twelve years—which is, to dig the holes two feet or deeper, and fill with cobble stones, taking care to drive them with an iron bar, and placing a heavy stone at the surface, each side of the post—thus preserving it from contact with the earth at a point where the rotting process usually begins. I have set several hundred in this manner, and have good reason to believe their durability will thereby be much prolonged. In 1823, a piece of fence was set with beech posts and filled round with earth. In 1824, the line was extended, the filling up this year being with stone. In about seven years, it became necessary to rebuild the first portion; most of the remainder is now standing. I would not recommend beech for posts, but state this fact merely to show the result of different modes of filling up.

The last season was generally unfavorable to the growth of corn My planting ground was a piece of wheat stubble, the soil in general gravelly, containing about four acres, was manured with twelve loads of various kinds, chiefly coarse, to the acre, before ploughing; then well turned under and harrowed. About the 20th of May, the ground was marked out for planting, by a sort of rake, with four teeth, making the rows three feet apart. I have sometimes planted closer, but cannot recommend it from my own experience. The seed was soaked, tarred and rolled in plaster. The ground being very dry, the tar rather obstructed vegetation, and caused the grain to come up quite unevenly. The crows took a few hills, though I presume the flavor of tar was not very agreeable to them. I hoed twice, and received as a compensation for my labor, about 200 bushels of corn, chiefly sound. Having prepared land for planting in several different modes, I am inclined to adopt that of a single ploughing, with the manure previously spread, as preferable.

Permit me here to describe a sort of corn crib, which I have used for several years, as combining convenience, economy and security; and where every farmer can save at least a portion of his crop. Erect two poles of sufficient size, near the end of the barn-floor, opposite the double door, extending to the joists above, where they should be fastened. Then place two pieces of timber, three or four feet in length, from the poles to the girt over the back door; throw on loosely, a covering of plank or slabs, with a narrow board in front, when commence filling, a scoop being very convenient for that purpose Corn secured in this way, has usually, if not always, seasoned better than when spread on a floor. A crib of this description will hold from 150 to 200 bushels of ears, with little or no inconvenience to the ordinary use of the barn

With regard to the culture of oats, it has been my practice for some years, to seed with three bushels to the acre. Some of my neighbors differ with me in this, and prefer a less quantity. My reason for adhering to it is this—the crop is almost invariably ten or fifteen bushels greater per acre, than it was when in the habit of seeding with two or two and a half bushels. I will here correct a small error in a former note, as the threshing was not then completed. Instead of 60 bushels per acre, 1 73-100 acres yielded 113 bushels, or 115 by weight. I hope yet to reach the standard in the Cultivator for January.

During the past season, I made considerable use of apples in fattening swine. This I consider good economy. My store hogs have been wintered thus far chiefly on sweet apples, 50 bushels having been stored in the cellar for that purpose. In estimating the value of apples for hogs, however, it should be borne in mind, that pork made in this way is not of equal value to grain fattened; but as that is an expensive business, it is the farmer's duty to make the most of those perishable materials, that more or less abound during the autumnal season, and thus prevent their entire loss.

Very respectfully yours, G BUTLER.

Clinton, Oneida co. N. Y. February 25, 1836.

A housewife sends the following method of making Indian cakes, for publication in the Cultivator:—To one pint of milk, add a tea-cup full of cream, one egg, two table spoonsful of molasses, a tea-cup full of flour, a tea spoon full of saleratus, and a quart of Indian meal, with salt sufficient to season. Mix well, and make into balls about the size of a goose-egg, drop them into hot lard, and fry 15 or 20 minutes.

CRITICISM—VALUE OF THE RUTA BAGA.

J. Buel, Esq.—Dear Sir—I observed in your February number, 2d vol page 182, a communication from Pittsford, Monroe co. Jan. 9th, 1836, representing an account of agricultural labors this season, so far as they are connected with the cultivation of Indian corn, the carrot and ruta baga crops. It is thus, through the medium of so valuable a publication as the Cultivator, we receive information from the industrious and scientific cultivators, to the general benefit of the agriculturist. In communicating the success which attended your correspondent's experiments, in the produce of corn, the carrot, and ruta baga turnip, reflects the highest credit, and serves to stimulate the young and aspiring agriculturist In observing my attention particularly solicited to the account of the ruta baga crop, and having devoted many years and great expense in the cultivation of ruta baga, in England and America, on the level as well as four furrow system, which must depend upon the nature and depth of the *staple* and knowledge of the *fertile* qualities of the *soil*, so cultivated, for that vegetable, I feel it my duty, (in which I am involved,) for the benefit of aspiring cultivators of the ruta baga, to state my impression, that there has been an unintentional mistake as to the weight of the turnips, and if so, will lessen the value of the crop materially. * * * *

The motive of this communication is, that I am fearful some agriculturists who may be disposed to cultivate the ruta baga, and not having experienced its cultivation, may feel themselves disappointed with their produce and solidtiy, when compared with the statement of your correspondent, and discontinue the cultivation of one of the most *profitable*, *valuable* and *useful* roots, that a farmer can cultivate for his stock—which will, with proper management in feeding them away, continue the growth of young stock through winter, with all the glossy appearance of coat, and advantages of summer, promoting symmetry, size and qualifications for the use of the dairy or labor—providing them with a comfortable dry shed, and allowing plenty of straw for bedding From the produce of one acre cultivated by E. Holbrook, Esq. we have supported 16 head of young stock, with hay at intervals during the day, to this period, and have a sufficient quantity to feed them this severe winter, until they are turned out into rough land. I might write much upon this subject, which would be useful to young and inexperienced cultivators of the ruta baga and the management of young stock; but I am fearful its length would preclude its admission in your valuable paper. I am very respectfully yours,

Hyde-Park, March 10, 1836. THOS. MIDFORD.

GRAIN WORM—CHINCK BUG—DUTTON CORN.

Goochland County, Va. January 9, 1836.

Dear Sir—What is it you call the "Wheat Worm?" Is it a catterpillar? Does it prey first upon the blades, and then upon the chaff of the green heads—or does it eat up the green grain in its forming state?* I ask these questions merely to state a fact that has twice occurred here, (and pretty extensively,) in my recollection. About the time the crops of wheat were generally out of the boot, (the first time I think was 1789, the next 1807, and not since,) hosts of caterpillars made their appearance in wheat fields, commencing usually at the manured spots, and extending generally through the wheat, and destroying, first every green blade, and then falling upon the *shuck* of the head, if *green*—otherwise, moving off, (always in one direction,) by millions, to the next green spot. These insects were one inch and a half or quarter long, striped and hairy. To the astonishment of the owners, the wheat at harvest was found to be rather benefitted than injured, where the *blade only* had been eaten off. Where the head of the wheat continued green and ripened very slowly, the wheat was frequently entirely destroyed. I have seen these worms destroyed, by cutting ditches between fields. I have seen ditches from three to four inches deep with the worms, destroyed by spreading on and burning them with straw and leaves. Now I should be glad to know if your wheat worm resembles the above?

The chinck bug is a much more formidable enemy with us than the wheat worm, or even the Hessian fly. They (the chinck bugs,) attack both corn and wheat crops—the latter in May, the former generally in the month of June. They continue to injure the wheat, by extracting the sap as long as there is a particle of it in the stalk. The consequence is, where they are numerous, the grain, when harvested, is nearly worthless and the straw vastly injured. By the time the wheat is cut, the bugs (then flies,) take wing, and immediately spread over the neighboring corn fields, concealing themselves under the blade slips, under the roots, &c. where they deposite millions of eggs, which are hatched in eight or ten days, and continue through rapidly succeeding generations, to prey upon the sap as long as any thing green remains upon the stalk—finally taking shelter for the winter, under the bark of stumps and logs, under large clods, &c. to be ready for the work of destruction the next season. When first hatched, they are very small and as red as cochineal. They grow very rapidly, and in a week attain half the size of a bed-bug—in a week more, they acquire wings, fly and spread themselves over the field, depositing their eggs generally. They are, in the last state, about twice the size of a flea, have white wings, and their bodies being dark, have a speckled appearance. I have been thus minute in describing these insects, because I observe, from the Farmer and Gardner, they have never been seen in Maryland, and suppose they are unknown with you. They resemble the bed-bug in nothing but their abominable scent when crushed. I should have stated, that the injury to the corn crop is never very great, except in very dry seasons. I have said, that the chinck bug is a much more injurious enemy than the Hessian fly. I may say that I do not consider the latter to have been, upon the whole, a very pernicious thing. They certainly do but little injury where the land is capable of producing as much as fifteen bushels of wheat to the acre, and farmers having generally made this discovery, have been induced to improve their wheat lands, and have thus more than counterbalanced the injury. Our system of improvement, however, is, I apprehend, about to be greatly retarded by the general cultivation of tobacco, in consequence of the high price of that article. It is now selling from 10 to 15, and even as high as 20 dollars the hundred weight. This will require all the manure that can be raised, and other crops must consequently be neglected. The high price of tobacco and cotton, and the general movement about internal improvements—such as the James River canal, now under contract, from Lynchburgh to near Richmond, upon Judge Wright's plan; the Fredericksburgh and Potomac rail-road, under contract from Richmond to the Potomac, and others in contemplation by petitions now before the legislature, have had a tendency greatly to increase the rates of slave labor, and have raised the price of that species of property, within the last two years, from four to eight and nine hundred, and often as high as $1,000, for male slaves, from 20 to 30 years of age. Indeed, I think, among other pernicious effects to that unhappy race, northern fanaticism has tended to augment their value. I believe 1,000 male slaves could now be hired on the rail-roads and canals, at $100 or more for each, which is nearly 100 per cent above the ordinary rates.

I began this desultory scrawl merely to ask you to request Mr. Bement to send me a pair of pigs, and shall conclude it by asking the favor of you to describe your Dutton corn in the Cultivator, and if practicable, send me with the pigs, a small quantity of seed. Is it white corn?* If so, it will probably suit our climate. Does it produce more ears than usual to the stalk? Does it grow tall? Has it much fodder? How many rows to the ear? &c. &c.

---

* It eats the grain in its green state. A small fly punctures the inner sheath of the young kernel, in the same way that the young pea is punctured, and deposites its eggs, which soon produce small yellow worms, sometimes a dozen in one sheath, which do not appear to the naked eye to have motion. They do not emigrate, but invariably consume the kernel to which they are attached. In some heads the grain of the ear is but partially destroyed, in others wholly.—*Cond.*

I conclude by saying, that all men speak highly of the Cultivator. Notwithstanding the difference in our climates, we find it well calculated to direct our general management. Your terms are different from ours. For instance, you use the term husk where we say shuck—you specify quantities of land by roods, instead of parts of an acre, as 1-5th, &c. and many others, only calculated, however, to bother the *very* ignorant. Excuse the trouble you may be at in reading this, and do what you please with it.

Yours most respectfully,
T. A. W. PLEASANTS.

AGRICULTURE.

The pursuit of agriculture, in all its branches, offers to a liberal mind, opportunities for research and experiments, which is denied in almost every other department of science. The perfection to which all other professions and sciences have arrived, leave nothing to the follower of them at the present day, but study and toil, in acquiring a knowledge of the discoveries and inventions of others. By some accidental circumstance, like that which revealed to Newton's mind the eternal law of gravitation, some new discovery in astronomy may yet be made; but to the devotee of science who starts with the determination of laboring till he discovers some new principle by which the heavenly bodies are governed, there is little to be anticipated for the reward of his enthusiastic toil, but disappointment and sorrow at least; while the same labor and investigation bestowed on subjects connected with the culture of the soil, would probably have revealed some fact, unknown before, or at least might have gone far to arrange and classify the discordant facts with which the annals of agriculture abound. While the rules that govern the planetary system have been recorded with the most scientific exactness, so that every star, and every star's motion is known and recorded; the laws that rule the productive powers of the soil, and a knowledge of which seems the first and most natural tendency of the human mind, have been but dimly and obscurely traced. Upon what does the claim of agriculture, to be considered an exact science rest? The answer is, upon a thousand contradictory facts and opinions handed down from the earliest period of history, and augmented till the present day, so that they now form a heterogenous mass, which requires and invites the study attention of scientific minds to separate truth from error. Let the laws that govern the soil and its powers be observed—let every fact received as a canon, be subjected to the test of philosophy and exact experiment, and at last be classified and arranged, and then we may boast of having brought agriculture to the rank of a science.

It is a fact to be lamented, that there does not exist among the tillers of the soil, a more inquisitive spirit concerning the nature and habits of the objects they have most to do with, and upon the perfection of which depends their hopes of gain. There is very little of that spirit alive. What does it concern the farmer, whether a root is indigenous or exotic; whether a plant is at home in clay or sand? as long as it has happened to come up where he has happened to drop the seed.

"A primrose by the river's brim,
A yellow primrose is to him,
And nothing more."

But before any very great change can take place in the present state of agriculture, several radical obstacles must be removed. The apathy of agriculturists must be overcome; the dignity of the pursuit must be made known; and last, and most of all, the great and fundamental cause of national wealth, must receive encouragement from national legislation This is the true policy of the government, and if the real productive power of the soil was known, I hesitate not to say, that millions might be yearly added to our coffers, by a liberal and prudent course of government patronage to the cause of agriculture.—Make it an object for toil, and the wilderness everywhere will blossom like the rose.

These are a few general considerations, and if considered acceptable, are willingly given.

X. Y. Z.

Newton, N. J. April, 1836.

Among the recipes for curing hoven in cattle, I have never seen published the easiest and simplest method which I have ever known, viz: dissolve in a pint of water, about one ounce of pearlash, and drench the animal with it. I have frequently used it with invariable success, and it is as speedy as sure. I have never had a case occupy more than half an hour to be perfectly cured.

G. H. McCARTY.

---

* The Dutton corn is yellow. It does *not* produce more ears than other varieties. It does not grow tall—it is dwarfish in height, though it spreads much from the bottom, and affords much fodder. It is a twelve rowed variety—the grain sets very close upon the cob. If transferred to Virginia, we think it would become acclimated there, and in the course of years, attain the growth and habits of Virginia corn. We plant three feet apart, or two and a half by three, four stalks in a hill. Thus we obtain 23,232 stalks, and an equal number of ears on an acre. The Virginia mode of planting, if we apprehend correctly, is five feet between the rows, and three feet between the hills—two stalks in a hill, which would give to the acre only 5,808 stalks, or about one-fourth the number obtained by us. We plant about the 15th to the 18th May, and the crop is fit to cut in the first part of September, and sometimes the last week in August. The grain weighs 60 to 62 pounds the bushel.—*Cond.*

MISCELLANEOUS.

ON THE USE OF LIME AS A MANURE.—By M. Puvis.

Translated for the Farmers' Register from the *Annales de l'Agriculture Francaise*, of 1835.—*(Continued from page 13.)*

IMPORTANCE OF MANURES WHICH IMPROVE THE CONSTITUTION OF SOILS.

The question of improving manures is of great interest to agriculture. This means of meliorating the soil is too little known, and above all, too little practised in a great part of France—and yet it is a condition absolutely necessary to the agricultural prosperity of a country. In the neighborhood of great cities, alimentary manures being furnished on good terms, may well vivify the soil; but animal manures cannot suffice but in a few situations, and of small extent—and in every country where tillage is highly prosperous, improving manures are in use. The Department of the North (of France,) Belgium, and England, owe to them, in a great measure, their prosperity. The Department of the North, (which is, of all Europe, the country where agriculture is best practiced, and the most productive,) spends every year, upon two-thirds of its soil, a million of francs in lime, marl, ashes of peat and of dead coal, [*houille;*] and it is principally to these agents, and not to the quality of the soil, that the superiority of its production is owing. The best of its soil makes part of the same basin, is of the same formation, and same quality, as a great part of Artois and Picardy, of which the products are scarcely equal to half the rate of the North. Neither is it the quantity of meadow land which causes its superiority; *that* makes but the fifth part of its extent, and Lille, the best *Arrondissement*, has scarcely a twentieth of its surface in meadow, while Avesne, the worst of all, has one-third. Nor can any great additional value be attributed to the artificial meadows, since they are not met with except in the twenty-sixth part of the whole space. Neither can this honor be due to the suppression of naked fallows, since in this country of patent husbandry, they yet take up one-sixth of the ploughed land every year. Finally, the Flemings have but one head of large cattle for every two hectares* of land, a proportion exceeded in a great part of France. Their great products then are due to their excellent economy and use of manures, to the assiduous labor of the farmers, to courses of crops well arranged, but above all, we think, to the improvers of soil, which they join to their alimentary manures. Two-thirds of their land receive these regularly; and it is to the reciprocal reaction of these two agents of melioration, that appears to be due the uninterrupted succession of fecundity, which astonishes all those who are not accustomed continually to see the products of this region.

At this moment, upon all points in France, agriculture, after the example of the other arts of industry, is bringing forth improvements; in all parts especially, cultivators are trying, or wishing to try, lime, marl, ashes, animal black. It is this particular point in progress, above all, for which light is wanting; and this opinion has induced the preparation of this publication. Since more than 30 years, the author has devoted himself, from inclination, to agriculture; but he has been especially attentive to calcareous manures. He has studied in the practice of much extent of country, in his own particularly, in personal experiments, and in what has been written on them both by foreigners and countrymen. An *Essay on Marl* has been the first fruit of his labors; an *Essay on the use of lime* will soon be ready: it is with these materials that he now sets himself to work. To prepare for this object, a series of articles, of the nature of a recapitulation rather than of a regular work, it was necessary to be concise, and yet not to omit any thing essential. It is proper then that he should limit himself to the prominent parts of his subject, those especially useful to practice.—His advice will then be as often empirical as regular, and his directions will be precise, although supported by few developments.

An extract from this work has appeared in the *Encylopedia Agricole:* here it will again appear, but by separate articles, which will be corrected by a systematic general view of theory, founded on practice. This is the moment for multiplying publications on this subject, because that in almost all parts of France, it is the point in agriculture most controverted—that which induces the most labor and the greatest expenditures—which presents most doubts—and which has consequently most need of being made clear.

We shall not enlarge here upon the manner in which improving manures act: we will put off this important question, with its developments to the article on lime. Here we only present the theory. Hereafter, that which we will hazard will be founded upon facts, and yet we will not promise these developments, but for the purpose of enlightening and directing practice.

OF THE VARIOUS KINDS OF IMPROVING MANURES.

The first in order, and the most important, are the calcareous manures. We comprehend, under this name, lime, marl, old plastering mortar, and other rubbish of demolished buildings, beds of fossil shells, [*falun,*] or shelly substances, plaster or gypsum: experience and reason will prove that we ought to arrange in the same class, and by side of the others, wood ashes, ground bones, and burnt bones. We will not place in the same list, the ashes of peat, of dead coal, and red pyritous ashes: their effect is not owing to their lime, but (as will be seen afterwards,) rather to the effect of fire upon the earthy parts, and particularly upon the argil which they contain.

We will next in order treat of manures of the sea, of saline manure of different kinds, of mixtures of earths, of calcined clay: and finally, of paring and burning the turf, and the different questions which peat presents in agriculture.

---

* The hectare is very nearly equal to 2½ English (or American) acres.

OF LIMING—ON THE USE OF LIME FOR THE IMPROVEMENT OF SOIL.

1. Among the immense variety of substances, and of combinations which compose the upper layers of the globe, the earthy substances, silex, alumine, and lime, form almost exclusively the surface soil: the greater portion of other substances being unfit to aid vegetation, they ought to be very rare, upon a surface where the Supreme Author willed to call forth and to preserve the millions of species of beings of all nature, which were to live on its products.

It was also a great benefit to man, whose intelligence was to be exercised upon the surface of the soil, to have so few in number the substances proper to support vegetation. The art of agriculture, already so complex, which receives from so many circumstances such diverse modifications, if there had been added new elements much more complicated, would have been above the reach of human intelligence.

2. But among these substances, the two first, silex and alumine, form almost exclusively three-fourths of soils; the third, the carbonate of lime, is found more or less mixed in the other fourth: all soils in which the latter earth is found, have similar characters, producing certain families of vegetables which cannot succeed in those in which it is not contained.

The calcareous element seems to be in the soil a means and a principle of friability. Soils which contain calcareous earth in suitable proportions, suffer but little from moisture, and let pass easily, to the lower beds, the superabundant water, and consequently drain themselves with facility. Grain and leguminous crops, the oleaginous plants, and the greater part of the vegetables of commerce, succeed well on these soils.

It is among these soils that almost all good lands are found. Nevertheless, the abundance of the calcareous principle is more often injurious than useful. Thus it is among soils composed principally of carbonate of lime that we meet with the most arid and barren, as Lousy Champagne, part of Yonne, and some parts of Berry.

3. The analysis of the best soils has shown that they rarely contain beyond ten per cent of carbonate of lime; and those of the highest grade of quality seem to contain but from three to five per cent. Thus the analyses of Messrs. Berthier and Drapiez, show three per cent of it in the celebrated soil of the environs of Lille.

4. But all these properties, all these advantages, all these products, calcareous manures bear with them to the soils which do not contain the calcareous principle. It is sufficient to spread them in very small proportions: a quantity of lime which does not exceed the thousandth part of the tilled surface layer of soil, a like proportion of drawn ashes, or a two-hundredth part, (or even less) of marl, are sufficient to modify the nature, change the products, and increase by one-half, the crops of a soil destitute of the calcareous principle. This principle, then, is necessary to be furnished to those soils which do not contain it; it is then a kind of condiment disposed by nature to meliorate poor soils, and to give to them fertility.

ANCIENT DATE OF THE USE OF LIME.

5. Lime, as it appears, has long ago been used in many countries. However, nothing proves that its effect was well known to the Greeks and Romans, the then civilized portion of mankind. Their old agricultural writers do not speak of the use of lime on cultivated lands, nor on meadows. Pliny, the naturalist, tells us however, that it was in use for vines, for olives, and for cherry trees, the fruit of which it made more forward: and he speaks of its being used on the soil generally in two provinces of Gaul, those of the Pictones and Ædui, whose fields lime rendered more fruitful. The agriculture of the barbarians was then, in this particular, more advanced than that of the Romans. After that, all trace of the use of lime in agriculture, is lost for a long time—whether that it had ceased to be used, or only that the notice of it was omitted by writers on agriculture. The trace is again recovered with Bernard Pallissy, who recommends the use of it in compost in moist lands, and speaks of his use of it in the Ardennes. Nearly a century later, Olivier de Serres, advises its employment in the same manner, and reports that they made use of it in the provinces of Gueldres and Juliers [in Belgium.] He makes no mention of its use in France: but as the practices of agriculture were not then much brought together, and were but little known, it may be believed that at that time, Flanders, Belgium and Normandy made use of lime.

In England, liming seems to have been in use earlier and more generally than in France. But then, and in all time since, good agricultural practices have remained in the particular countries where they were established, without being spread abroad. Now, novelties carry no alarm with them—and in the last twenty years, liming has made more progress than in the two preceeding centuries.

Young Men's Department.

FROM A FATHER TO HIS SON.—No. V.

METHOD IN BUSINESS.

Farm accounts demand your early attention. Keep a daily journal, in which note down,—1. All your farm expenses, and all you receive for its products. This will enable you to determine your farm income. 2. Note down your family expenses. Subtract these, at the end of the year, from the income of the farm. The balance will be your annual nett profit. 3. Keep also an account of the expense bestowed on each crop, the contents of the ground being ascertained, and the lot numbered, and of its products and profits. This account may be posted at the close of the year, and will instruct you what crops are best adapted to your soil, which are most profitable, what rotation is best, and enable you to vary your practice so as best to promote your interest and the general improvement of your farm. 4. Note down the cost, increase and sale of your farm stock, and its products in cheese, butter, wool, meat, &c. This will show you the relative profits of each. These two last items may be posted from your daily journal, if the fields and animals are sufficiently designated. And 5. Put down daily, the business and ordinary transactions of the farm, and any occurrences that may be deemed worth remembering, as matters of reference. All this will occupy you ten or fifteen minutes each evening, and when familiar, it will be found an agreeable task, and it will assist you very much in regulating your farm concerns. The book which I use has three double columns for figures, in one of which, are carried out my farm expenses—in another my family expenses, and in the third, the moneys received for farm products. A few minutes, at the end of the year, suffices to ascertain their aggregate amounts.

Farm tools and implements should be substantially made, of good pattern, kept in order for use, and, when not in use, protected from the weather. A slight made implement is likely to break, and occasion a loss of time in getting it repaired. A bad pattern is always dearer in the end, whatever be its nominal price, than a good one. "*It will do well enough for the present,*" should never satisfy you. The loss in putting implements in order, at the moment they are wanted, often causes serious delay. Besides, they can be put in order at leisure times, or during stormy weather. Exposure to the weather soon impairs the value of the best tools. Every implement and tool should have a place assigned for it, where it should be deposited, when not in use. It is better to spend ten minutes to carry a tool to its place, than to spend sixty, as is often the case, in looking for it when it is out of its place. These rules preclude you from habitually lending your tools. There is nothing more vexing than to have to send through a neighborhood for one's tools, when we are in immediate want of them. A good farmer will seldom borrow—a bad one will seldom buy, as long as he can borrow. Of the tools not in common use on a farm, I commend to you particularly the hay or straw cutter. It will enable you to save one-quarter of your fodder. The cultivator will soon save its cost in the economy of labor it effects, in drilled or hoed crops, and, in most cases, is a better implement in this culture than the plough. A revolving horse-rake will earn its cost in a season; and a roller is indispensable in good farming. The drill-barrow, the corn-sheller, and the potato-hook are also useful and economical upon most farms, and the threshing machine upon farms where grain is extensively cultivated.

Early rising.—The farmer's business, more perhaps than any other, prospers by the habit of early rising. As his labors generally terminate with the day; there is sufficient time for rest. A farmer's family should be abroad, or up, by five o'clock, at all seasons. The master should set the example. Practice will soon render the habit a desirable one.

INTERESTING FACTS IN CHEMISTRY.

The creation or destruction of any element is not to be found in the operations of nature. The numerous phenomena of composition and decomposition, which take place upon the surface of the globe, present only changes of combinations, which are formed according to fixed, eternal and unchangeable laws. Thus nature is regenerated, without being impoverished, and matter experiences only those changes which are produced uniformly and periodically, especially in organized bodies.—*Chaptal.*

A vegetable substance is always acid, whenever the oxygen it contains is to the hydrogen in a greater proportion than in water;—it is always resinous, or oily, or spirituous, whenever it contains oxygen in a smaller proportion to the hydrogen than exists in water;—and it is neither acid nor resinous, but is either saccharine or mucilaginous, or analogous to woody fibre or starch, whenever the oxygen and hydrogen in it are in the same proportions as in water.—*Gay Lussac.*

The elements, or matters, of which plants are composed, are almost wholly carbon, hydrogen and oxygen. Whenever the plant dies, and decomposes or rots, these elements partially or wholly separate, and enter into new combinations, either animal, vegetable, mineral or eriform.

According to the laws of nature, animal and vegetable life are both very much influenced by the temperature in which they exist; we therefore find different kinds of vegetables, and a different race of animals, appropriated to the different climates of the earth.—*Parke.* We should, therefore, study to give to exotics the temperature and soil, as far as practicable, in which they flourished in their native clime.

As evaporation produces cold, condensation always occasions heat; that is, caloric is always evolved from those bodies which have undergone any degree of condensation. In the one case, caloric is absorbed; in the other, it is set at liberty.—*Idem.*

By the collision of flint and steel, so much caloric is disengaged, that the metallic particles which are struck off, are actually melted thereby. This is evident from their being always found in a sperical form.

If iron filings and sulphur be mixed into a paste with water, a sulphuret of iron will be formed, which decomposes the water and absorbs oxygen so rapidly, that the mixture takes fire, even though it be buried under ground.

If the bulb of a thermometer be immersed in a mixture of snow and common salt, the mercury will fall to at least 32° below the freezing point of water; and if the instrument be then removed from that mixture, and put simply into a mass of snow, the mercury will be so much heated by the change, as to rise 32°; so that snow, which appears to the hand to be totally void of all heat, contains sufficient to raise the thermometer many degrees.*

Water not only becomes converted into steam by heat, but when it is received into the atmosphere, if the air be warm, it becomes so far changed by its union with the matter of heat as to be perfectly invisible. In this state, it occupies a space 1,400 times greater than its ordinary liquid state. The vapor arising from boiling water, is visible only in consequence of its being partially condensed by a cold atmosphere, as may be demonstrated by causing water to boil in a Florence flask, over a lamp; for, in this case, the steam within the neck of the case will be found to be entirely invisible.

Bishop Watson found, by experiment, that when there had been no rain for a considerable time, and the earth was dried by the parching heat of summer, it still dispersed into the air, above 1,600 gallons of water to the acre, during twelve hours of a summers' day.

The ocean loses many millions of gallons of water hourly, by evaporation. The Mediterranean is said to lose more by evaporation, than it receives from the Nile, the Tiber, the Rhone, the Po, and all the other rivers that fall into it. The water is conveyed by the winds, to every part of the continents: these it fertilizes in the form of rain, and afterwards supplies the rivers, which flow again into the sea. This is one of those continual circulations whereby all matter is made to subserve various purposes, which have been devised by the Creator for the promotion of his beneficent designs.

"The beauteous sun
Lifts the bright clouds sublime, and spreads them thin,
Fleecy and white, o'er all surrounding heaven."

Evaporation is, in this climate, more than four times as much in summer as in winter. Heat facilitates all solutions; and the greater the difference between the temperature of the air and the evaporating surface, the greater will be the evaporation.

This principle of evaporation not only is the cause of all rain, mist, dew, snow, &c., but it moderates the effect of the sun's heat, by carrying off an immense quantity of caloric, (or heat,) in combination with the watery vapors. Were it not for the cold produced by evaporation, we should faint under any great bodily exertion, or die by excessive heat. But Nature, always provident, has furnished man with a fluid, which, insensibly perspiring and becoming evaporated from the surface of the body, is the vehicle which carries off the superabundant heat, as fast as it is generated. Cold-blooded animals, whose temperature is regulated by the medium in which they live, never perspire; but man, who was intended to live in a variety of climates, and designed for active exertion, is thus preserved from the effects of heat, which would otherwise be destructive. The blood of an inhabitant of the torrid zone, is no warmer than that of an inhabitant of the mountains of Lapland; which may be proved by placing a thermometer upon the tongue or under the arm. The various means which have been thus adopted, for the promotion of our convenience and comfort, are full of instruction, and highly gratifying to every reflecting mind.

The operation of this principle may be made apparent by the following experiment:—Take a small tube, with a little water in it, fold a little lint round it, and having immersed it in ether till the lint is soaked through, hold it in the air for the ether to evaporate. The cold produced by the evaporation will cause the water in the tube to freeze.—*Parke.*

Do not reckon any thing your own that can be given away.—*Pub. Syr.* All worldly possessions are of doubtful tenure, but virtue, philosophy and an enlightened mind, we may call our own.

Nothing flies so swift as calumny—nothing is so easily propagated—nothing is so readily received—nothing is more widely disseminated.—*Cicero.* Take care, then, that you do not originate, or give currency, to that which may do unjust and irreparable injury to your neighbor.

You do not value it greatly, because it came by accident.—*Hor.* The windfalls of fortune are less valued, and dissipated more profusely, than property which is the fruit of our own industrious operations.

---

* Sheep, fed with salt on the snow, are known to be afflicted with sore mouths. Their mouths become absolutely frozen by the intense cold produced by this mixture of salt and snow. This is a serious admonition to stock-farmers.

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at this office, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 19th March and 19th April inclusive. Numbers under ten not noticed.

POST-OFFICES.		POST-OFFICES.		POST-OFFICES.	
Ann-Arbor, Mich.	13	Genoa, Cay.	11	Plainfield, Mass.	11
Annapolis, Md.	55	*Gt. Barrington, Mass.	13	Pittsford, Mon.	21
Abington, Pa.	11	*Glenn's Falls, War.	13	*Pompey, Onon.	19
Andover, Mass.	11	Greeneville, Gr.	11	Pantego, N. C.	10
Adams, Jeff.	11	Glenville, Schen.	12	*Pittsfield, Mass.	43
Arcole, Ohio,	22	Haysburgh, War.	11	Pawlet, Vt.	10
Alamuchy, N.J.	26	Henderson, Jeff.	11	*Prattsburgh, Steu.	22
Buskirk's bridge, Was.	22	*Huntington, Suff.	29	Port Tobacco, Md.	10
Brownsburgh, Va.	11	Hoosick, Rens.	13	Pluckamine, N. J.	11
Bedford, Va.	11	Hartford, Wash.	17	*Quebec, L. C.	44
Brookeville, Md.	11	Hagerstown, Md.	10	Richmond, Rich.	32
Byberry, Pa.	25	Johnson's Creek, Nia.	11	*Richmondville, Scho.	24
Bolivar, All.	27	Jamestown, Chaut.	44	Reading, Pa.	33
Boston, Mass.	11	Kingswood, N. J.	11	Salem, Wash.	24
Blauenburgh, N. J.	11	Lowville, Lewis,	22	Subletts, Va.	11
Bernardstown, Mass.	20	Little Sodus bay,	11	Sheldon, Vt.	11
Bridgewater, One.	18	*Lec, Mass.	13	Scnnet, Cay.	22
*Berlin, Rens.	20	Lebanon, Ct.	11	Sugar loaf, Or.	17
Blue Hills, Me.	11	Lima, Liv.	11	Salisbury Mills, Or.	11
Bemis' Heights, Sar.	12	Larghons, Va.	11	Sidonsburgh, Pa.	11
*Butternuts, Ots.	15	Liverpool, Onon.	11	Sewickly Bottom, Pa.	11
Breakabeen, Scho.	11	Limerick, Jeff.	11	*Sheffield, Mass.	36
Berlin, Ct.	13	Leonardstown, Md.	11	Stokes, One.	11
*Bainbridge, Chen.	26	Milan, Ohio,	11	Staunton, Va.	44
Brooklyn, Ct.	12	Middlefield centre, Ot.	11	Silver Creek, Chen.	11
Bridgeport, Ct.	11	Marcy, On.	17	Stockbridge, Mass.	12
Chazy, Clin.	12	Marlborough, Uls.	11	Springville, Erie,	10
Colerain Mass.	11	Mohawk, Herk.	10	Sandusky, Ohio,	11
Central Canajoharie, M.	11	Marshall, Mich.	11	South Egremont, Mass.	12
Canterbury, Ct.	13	Madison, Ct.	13	*Skaneateles, Onon.	17
Cecilton, Md.	22	Manchester, N. H.	11	*St. Albans, Vt.	33
Columbus, N. J.	27	Mayville, Chaut.	17	Salina, Ky.	11
Champlain, Clin.	18	Mechanicsville, Sar.	11	Smyrna, Del.	21
Cherry-Valley, Ots.	11	Milton, Del.	11	Truxton, Cort.	20
Copenhagen, Lew.	13	Milton, Pa.	11	Torringford, Ct.	18
Concordville, Pa.	11	Marshall, One.	11	*Trumansburgh, Tomp.	26
Canaan Centre, Col.	22	Milford, Del.	11	Tipton, Mich.	11
*Cincinnatus, Cort.	21	Norwich, Chen.	11	*Washington, D. C.	36
Charlton, Sar.	12	Newberry, Pa.	11	Windsor, Broome,	11
*Cobleskill, Scho.	15	Nyack turnpike, Rock.	11	Wallingford, Ct.	20
Cambridge, Md.	33	*Newtown, N. J.	28	Waterford, Pa.	11
Cincinnati, Ohio,	11	Norfolk, Va.	21	Whitchall, Wash.	11
Clear Spring, Md.	22	Norwalk, Ct.	34	Walpole, N. H.	13
Detroit, Mich.	13	*Northampton, Mass.	49	*Whalen's store, Sar.	22
Dundas, U. C.	22	New-York,	49	*Wheatland, Mon.	15
East Long Meadow, Ms.	11	Newtown, Va.	11	*W. Stockholm, St. L.	21
East Avon, Liv.	13	Oswego, Os.	11	Williston, Vt.	22
East Hampton, Suff.	11	*Oxford, Chen.	33	Warsaw, Va.	10
Erieville, Mad.	11	Osbornville, Gr.	11	West Edmeston, Ots.	11
Flemington, N. J.	15	Port Royal, Va.	11	*Woodstock, Vt.	38
Fulton, Oswego,	14	Pembroke, Mass.	14	Watertowa, Jeff.	21
Farmington. Mich.	11	Princeton, Ill.	22	Vernon, Del.	11
Granby, Ct.	11	Princes Ann, Md.	11	Vienna, Md.	11
Gaines, Orleans,	11	Poland, Herk.	20	Vernon, N. Y.	30
Gustavus, Ohio,	13	Philadelphia, Pa.	34	Yorktown, W. Ches.	11

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. April 19.	Boston. April 16.	Philadel'a. April 14.	Baltimore. April 14.
Beans white, bush........	2 25.. 2 50	2 00.. 2 50	..2 25	1 25..1 50
Beef, best. cwt...........	..13 75	12 75..13 90	11 0..12 0	8 50..8 75
Butter, fresh, pound, ...	25.. 31	20.. 22	18.. 20	20.. 25
Cheese, pound, ...	8.. 12	8.. 9	10.. 12	
Flour, best, bbl......	7 00.. 7 81	8 00.. 8 56	6 89..	7 25..8 25
GRAIN—Wheat, bushel, ..	1 62..	....	1 40..1 45	1 38..1 45
Rye, do. ..	1 25.. 1 30	1 20.. 1 25	95..	90.. 95
Oats, do. ..	50.. 52	60.. 65	50.. 52	46..
Corn, do. ..	90.. 94	92.. 98	.. 90	80.. 85
SEEDS—Red Clover, lb...	10.. 11	10.. 11	8.. 9	8½..
Timothy, lb......	11.. 12	....	2 00..3 00	
WOOL—Saxony, fleece, lb.	70.. 85	65.. 75	70.. 75	
Merino, lb..... .	50.. 65	55.. 65	62.. 68	
1-4 and com. lb...	40.. 48	40.. 45	42.. 47	
Pulled, lb.......	18.. 55	30.. 60	20.. 56	
Sheep, ...	....	4 50.. 6 00		
Cows and Calves,........	....	18 00..30 00		

FROM THE STEAM-PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

Vol. III. ALBANY, JUNE, 1836.—(67 State-street.) No. 4.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor*.

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—Judah Dobson, Philadelphia—Messrs. Hovey, Boston—George C. Thorburn and Alexander Smith, New-York, and Samuel F. Glenn, office of the National Intelligencer, Washington. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

NEW-YORK STATE AGRICULTURAL SCHOOL.

Books of subscription to the stock of the New-York State Agricultural School, will be opened at Albany, New-York, Poughkeepsie, Hudson and Buffalo, on the first day of June inst. Shares $25—five per cent to be paid on subscribing.

☞ At Albany, the books will be opened at Bement's Hotel; at Poughkeepsie at Hatch's Hotel—at 12 o'clock meridian.

Jesse Buel, *Albany*, John P. Beekman, *Kinderhook*,
L. F. Allen, *Buffalo*, Joab Center, *Hudson*,
Henry Yates, *New-York*, John Delafield, *New-York*,
Walter Cunningham, *Poughkeepsie*.

AGRICUTURAL SCHOOL.

We publish below, the "act to incorporate the New-York State Agricultural School." The books of subscription to the stock will be kept open by the commissioners, at their several residences, during the month of June, unless sooner filled. This stock, it is believed, will afford a safe and judicious investment. But the law does not appeal to mercenary motives—it has higher aims—its object is to improve the social and moral condition of the state, and to increase the products of its soil;—it is designed to give to productive labor the efficient aid of science, and to concentrate and teach the best modes of practice—and to elevate, withal, the intellectual and moral character of that portion of our citizens, who are emphatically the guardians of our civil and political rights. It is an untried experiment, and if it succeeds according to the hopes and expectations of its friends, similar schools will ere long be established among us. With these high objects in prospect, it is confidently believed, that a disposition will not be lacking, among our philanthropic and enterprizing citizens, promptly to lend their means and their influence, in carrying its provisions into effect.

An act to incorporate the New-York State Agricultural School. Passed May 6, 1836.

The People of the State of New-York, represented in Senate and Assembly, do enact as follows:

§ 1. William L. Marcy, John Tracy, Jesse Buel, Stephen Van Rensselaer, Henry Yates, Gideon Lee, Joab Center, John P. Beekman, Cornelius W. Lawrence, Philip Hone, Benjamin Knower, Gouverneur Ogden, Erastus Corning, James Wadsworth, David E. Evans, Hiram Pratt, Walter Cunningham, Gilbert O. Fowler, Nathaniel P. Tallmadge, Nicholas Devereux, Anthony Van Bergen, Garrit Wendell, Archibald M'Intyre, Thomas D. Burrell, John Greig, Thomas W. Olcott, Ziba A. Leland, George P. Oakley, John Delafield, Edward P. Livingston, John Townsend, Lewis F. Allen, and all such persons as now are or may hereafter become associated with them, are hereby constituted a body corporate, by the name of "The New-York State Agricultural School," for the purposes of instruction in literature and science, and improvement in scientific and practical agriculture and the mechanic arts.

§ 2. The capital stock of the said corporation shall be one hundred thousand dollars, with liberty to increase it to two hundred thousand dollars, to be divided into shares of twenty-five dollars each, which shall be considered as personal property, and be assignable in such manner as the said corporation may, in its by-laws, from time to time, provide: which said capital stock shall be exclusively devoted to the purposes and objects of the said corporation, as declared in the first section of this act, and to no other purposes or objects whatever. And to the same end, the said corporation shall have power to take, hold, and convey real estate to the extent of its said capital.

§ 3. Jesse Buel, Lewis F. Allen, Henry Yates, John P. Beekman, Joab Center, Walter Cunningham and John Delafield, shall be commissioners to receive subscriptions for, and to distribute the said capital of the said corporation.

§ 4. The said commissioners, or a majority of them, shall, within thirty days after the passage of this act, open a subscription book for the said stock, at such times and places as they shall appoint; and they shall give at least fourteen days' previous notice thereof in at least two of the agricultural papers in this state.

§ 5. At the first subscription to the capital stock of the said corporation, no subscription above one thousand dollars, by or in behalf of the same individual, shall be received. Five per cent on each share subscribed for shall be paid to the said commissioners at the time of making such subscription, forty-five per cent thereon when afterwards called for by them; and the remaining fifty per cent at the expiration of six months from the time of such subscription.

§ 6. If the whole of the capital stock of the said corporation be not taken up at the first subscription thereto, the said commissioners, or a majority of them, may receive further subscriptions thereto, from time to time, until the whole capital stock of the said corporation shall be taken up.

§ 7. The said commissioners, or a majority of them, shall, within twelve months after the passage of this act, proceed to distribute the capital stock of the said corporation among the subscribers thereto; and in case there should be subscriptions to more than the amount of such stock, it shall be the duty of such commissioners to apportion the same among the subscribers thereto, in such manner as they may deem most advantageous to the interests of the said institution, and best calculated to promote its objects.

§ 8. The stock, property and concerns of the said corporation shall be managed by thirty-two trustees, of whom the governor and lieutenant-governor of the state, for the time being, shall always, by virtue of their offices, be two; and the remaining thirty shall be stockholders of the said corporation, and citizens of this state. They shall be elected annually, and any seven thereof shall be a quorum for the transaction of the ordinary business of the said corporation.

§ 9. The persons named in the first section of this act shall be the first trustees of the said corporation, and shall hold their offices until the first Tuesday of February, one thousand eight hundred and thirty-seven, and until others shall be elected in their places.

§ 10. The trustees of the said corporation for every subsequent year, except the governor and lieutenant-governor, shall be elected on the first Tuesday of February in each and every year, at such hour of the day and at such place as the trustees for the time being shall appoint, and of which they shall give public notice not less than fourteen days previous to the time of holding such election, by advertisement to be inserted in at least two of the agricultural papers in this state.

§ 11. At every election of trustees, each stockholder shall be entitled to one vote on each share of stock owned by him, and which he shall have held for at least fourteen days next preceding such election.

§ 12. All elections for trustees, other than the governor and lieutenant-governor, shall be held under the inspection of three stockholders, not being trustees, to be appointed previous to every election by the board of trustees for the time being. Such election shall be by ballot, and by plurality of the votes of the stockholders or their proxies then present; and the thirty persons who shall receive the greatest number of votes shall, together with the governor and lieutenant-governor for the time being, be the trustees of the said corporation: and if at any such election for trustees, two or more persons shall have an equal number of votes, then the trustees who shall have been duly elected, shall proceed by ballot, and by plurality of votes to determine which of the said persons, so having an equal numbers of votes, shall be trustee or trustees, so as to complete the whole number.

§ 13. If any trustee of the said corporation, other than the governor or lieutenant-governor, shall cease to be a stockholder thereof, or shall remove out of the state, his office shall thereby become vacant; and whenever any vacancy shall happen among the trustees, such vacancy shall be filled for the remainder of the year in which it shall so happen, by such person possessing the qualifications above required for trustee of this corporation, as the remaining trustees for the time being, or a majority of them, shall appoint.

§ 14. The trustees of said corporation, as soon as may be after their appointment or election under this act, shall, in like manner, proceed to elect, of their number, a president, two vice-presidents, a treasurer, a recording secretary and corresponding secretary, who shall respectively hold their offices for one year, and until others are elected in their places. They shall also appoint such professors, teachers, agents, and other persons as may be necessary to conduct the proper business, and accomplish the declared objects of the said corporation.

§ 15. The said trustees shall, as soon as may be, proceed to purchase a farm of about five hundred acres of land, either contiguous to, or near the Hudson river, and as nigh to the city of Albany as may be convenient; and shall cause to be erected thereon such buildings as may be suitable and necessary, and make all such other arrangements as may be proper for the future business of the said corporation, and for the accomplishment of its objects.

§ 16. The said corporation, in exercising its power of making by-laws for its own government, shall make it an indispensable requirement that the professors, teachers, and pupils of the school hereby intended to be authorized and established, shall, unless prevented by sickness or other reasonable cause, occupy themselves for at least one-half of the time the said school is in session-between the months of March and December, either in the practical agricultural business of the farm, or in the laboratories or mcehanics shops connected with said school.

§ 17. The said corporation shall in no case, out of the profits arising from its business, declare and make a dividend of more than five per cent per annum, upon its actual incorporated capital paid in and possessed; and if at any time after the payment of such dividend, there shall remain any surplus of such profits, it shall be expended in additions or improvements to the farm, buildings, library, apparatus, or other necessary establishments connected with the said institution, or in reducing the price of tuition at the same.

§ 18. The governor shall appoint annually a committee of three presons, whose duty it shall be to visit the said institution, and to report the condition thereof to the legislature at the commencement of its next session. The members of the said committee shall receive no compensation for their services under this act, but their reasonable expenses shall be paid by the said corporation.

§ 19. The corporation hereby created, shall be subject to the provisions of the eighteenth chapter of the first part of the Revised Statutes, so far as the same are applicable, and have not been modified or repealed.

§ 20. This act shall take effect immediately after the passage thereof.

RUTA BAGA.

"The substitution of green crops [principally turnips] for fallow, on all but stiff clay lands, has been the greatest of all improvements ever made in agriculture; and has effected as great and beneficial a revolution in it, as the introduction of the steam-engine and the spinning-frame has done in manufactures."—*Edin Qr. Review.*

The turnip culture began in Great Britain about sixty or seventy years ago, and the ruta baga was of far more recent introduction.—It has led to the principal improvements in British husbandry. Since its introduction, the weight of neat fat cattle and sheep, has been doubled; an excellent improving rotation of crops has been introduced; lands have increased in fertility, and, where the turnip culture has most prevailed, have quadrupled in products; and the farmer has been enabled to enjoy more largely of the profits of the soil and the comforts of life. The United States are capable of deriving as great advantages from the turnip culture as Great Britain has experienced; for although in the north the roots must be drawn and secured for winter use, the extra labor is fully compensated by the greater advantage our stock derives from their succulent qualities during our long winters, confined, as they otherwise ordinarily are, to dry fodder. The Swedish turnip, or ruta baga, possesses manifest advantages over all other species of the turnip. It gives a greater product; it is more nutritious; it improves by keeping, and by enlarged size—the heavier being richer in nutriment than the light; and it may be fed till June or July. We are now feeding our last crop, May 14, and have a supply, in good condition, for three or four weeks.—We hazard little in saying, that the quantity raised in northern and western New-York last year, was four times as in great as any former year, and that most of the farmers who raised them are preparing to extend their culture. But as the business is new with many, we shall venture to prescribe directions, though for the tenth time, for their culture, with the view of encouraging and aiding beginners.

The Soil.—All turnips do best upon a light sandy, gravelly or loamy soil. They do not prosper in a stiff clay, and will not thrive where it is wet. The Swede, in addition to a light soil, requires one that is rich, and which should at least be made so by a good dressing of manure, preparatory to sowing the seed.

Preparation of the Soil.—If an old stiff sod, it may be ploughed the preceding fall, or early in the spring, the manure spread, the ground cross-ploughed, and harrowed before planting. If a young clover lay, which we deem best, it may be mown in June, manured, ploughed, and well harrowed immediately preceding the sowing. If tilled ground, manure and plough deep, and harrow. Sow as soon as possible after the last dressing with the harrow. The soil *then* contains air and moisture, both essential to the germination of the seed.

Mode of Sowing.—It is best to sow in drills, at 27 to 30 inches apart. This facilitates the after culture, and permits the surface of the soil to be kept loose, and pervious to heat, air and moisture, the prime agents of vegetable nutrition. A drill barrow greatly economises this labor. With it a man will put in four or five acres in a day.—Bement's, Robins', or any drill in common use, will answer.—In Great Britain, it is a common practice to drill upon ridges, which is done thus: when the ground has been properly prepared, furrows are first drawn at the distance designed for rows, in which the manure is placed; two furrows are then gathered over the manure, the seed is drilled upon these ridges, and a light roller is passed over, either before or after the seed is deposited. We have tried this mode, but think it preferable to spread the manure, and drill in the seed upon a level surface. In damp or cold grounds, or to economise manure, the ridge system may be preferable. Bone manure is now extensively used in Britain with this crop. It is placed in the drill with the seed, at the rate of 20 to 25 bushels the acre, and tends powerfully to augment the product.

Time of Sowing.—Cobbett recommended 25th June at Long Island. We prefer the first July at Albany. Much depends on the soil, the aspect and fertility, the coldest and poorest land, and northern aspect, to be sown first. We recommend, that in the extreme north, and in elevated cold districts, the sowing be done from the 10th to the 20th June; in our latitude, upon warm soils, from the 20th to the 30th June; and later as we proceed south; and that far to the south, they should not be sown till the summer heats have abated—say the last of August. The Swede is a hardy plant, native of a northern climate, and grows till the ground is absolutely frozen.—*Hot* weather is unfriendly to a good crop of roots.

Quantity of Seed.—We allow a pound to the acre, though less suffices. It is better to have an excess of plants, to be thinned on cleaning the crop, than to have vacancies. The seed is of little relative value compared to the roots which it produces. If sown broadcast, more seed is required than when sown in drills; though we think a pound enough even when sown broadcast.

After Culture.—This consists in keeping the ground free from weeds, the surface loose, and in thinning the plants to the proper distance. The corn cultivator is principally employed. It should be passed through as soon as the rows can be well distinguished. It mellows the ground, and destroys the weeds in the intervals, before they attain much size. It should be passed both ways in the same interval, in order to perform the work well. The turnip hoe, described and figured in our last volume, may then follow to clean the rows and thin the plants, which should not be left to grow at less distance than eight or ten inches. Two cleanings with the hoe are all that will be required at most. The crop may be dressed thrice with the cultivator with advantage, whether there are weeds or no weeds.

Time of Harvesting.—As we have remarked, the roots continue to grow till checked by frost; and as the late harvested keep best, and the tops longest, the ruta baga crop may stand late. The ground is often partially frozen, or covered with snow, before it is gathered; and it has stood in the ground all winter, particularly the last one, with but partial injury.

Mode of Harvesting.—The roots may be mostly pulled by the hand; and they may be topped and tailed, with a bill-hook or heavy knife, separately as they are drawn, or laid upon the ground in rows, and then topped with a knife as they lay. They should be gathered in dry weather, and secured in cellars or pits as soon as the exterior is somewhat dry, and not exposed to frost after they are pulled; though a smart frost does them no injury while in the ground.

Preserving the Roots.—Small quantities may be stored in cellars; but the main reliance of those who cultivate on a large scale, must be pitting in the field. For this purpose, select a sandy dry situation, not liable to be inundated by water, open a pit two to four feet deep, as the dryness of the situation will allow, two and a half or three feet wide, and as long as may be convenient. Fill it with the roots, and raise them 18 or 24 inches above the surface of the ground in the form of a ridge; cover slightly with straw, and then with dirt. Then with a crow-bar make holes at every two or three feet upon the crown of the ridge, and put into each a wisp of straw, that the impure, or rarified air may at all times freely pass off.

Use of the Crop.—The tops, which are abundant, may be fed in the cattle yard, with great advantage to the stock and the dung heap. The roots constitute an excellent food for cattle, sheep, hogs and horses, from November to June, though the latter often at first reject them unless they are first steamed or boiled. They increase the milk of cows, without imparting their flavor to the milk or butter where the animals have daily access to salt. They are peculiarly beneficial to sheep in the late winter and spring months, especially to ewes having lambs. Neat cattle and sheep are fattened upon them with facility—the former consuming from two to four bushels per diem, with straw or a little hay. Hogs thrive upon them.

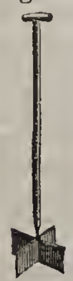
Product and Profits.—From many years experience, we estimate, as an average product, under good management, 600 bushels to the acre. We may assume the following as the average expense of cultivating and harvesting an acre:

One ploughing and a thorough harrowing............	$2 50
20 wagon loads manure, at 75 cents................	15 00
1 pound seed......................................	1 00

1 day spreading manure and drilling seed	0 75
3 dressings with cultivator, man and horse one day	1 25
2 dressings with hoe, six days, 6s	4 50
5 days harvesting and pulling, 6s	3 75
	$28 75

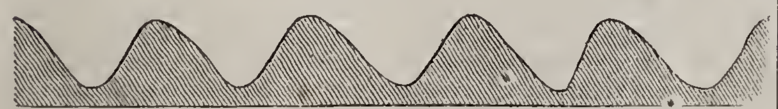
which divided by 600, the number of bushels, would bring the cost of the roots below five cents the bushel. But if we abate half the cost of the manure for the after crops, and allow a fair consideration for the tops, say $5, it will reduce the cost of the roots to less than three cents a bushel. Now a cow or bullock will do well and thrive upon two bushels a day; hence an acre will afford 300 daily rations, or maintain five cows 60 days, at the actual cost of $16.25, or $3.25 for each the two months. Let us contrast this expense with that of feeding hay. We believe a ration of hay is 28 lbs. Let us suppose it to be 25 lbs. Then to keep the five cows 60 days would require 7,500 lbs., or 3 tons 15 cwt. hay, which, at a fair medium price of $10 a ton, would amount to $37.50—making a difference in favor of the turnips of $21.25, or nearly three-fifths. Let us test the relative profits in another way. The average product of our grass lands is about two tons the acre—say the product of two acres would be 7,500 pounds, then the product of an acre in ruta baga would go about as far in feeding stock as the product of two acres in meadow; with the further advantage, where the turnips are sown upon a young clover lay, that one-half the hay may also be cut from the acre which produces the 600 bushels of turnips, the latter being raised as a second crop. But ruta baga is seldom fed alone. Every farm furnishes corn stalks, straw and other materials, which can only be fed profitably on the farm, and which are fed to advantage with turnips. Nor is it convenient at all times, in this latitude, to feed the turnips during the severe cold of winter; but as the mild weather of spring advances, they are peculiarly grateful, and may be readily fed to all kinds of farm stock. There are various devices in use for cutting or slicing the roots. The turnip spade, (*fig.* 20) is an instrument with four blades, at right angles to each other. The turnip, or other root, is struck as it lies upon the ground, or in the feeding trough, and thus at one stroke divided into four parts. A meat chopper, with a long handle, termed a *snick*, is also advantageously employed to reduce the roots to a suitable size. A new and excellent mode of preparing the roots for feeding, is to grate them, and feed with cut straw, stalks or hay. We have heard of some ingenious machines for this purpose, which perform the work with great facility, and which we hope soon to be able to see and describe satisfactorily. We have seen a model of Robins' turnip slicer, of which we cannot yet speak with confidence, not having seen it in operation. The price of this machine is $10. The model may be seen at Bement's hotel.

Fig. 20.



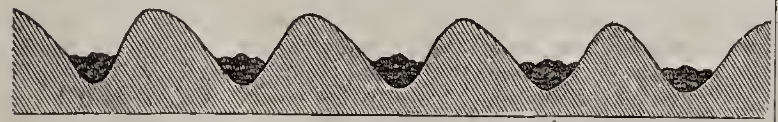
The British mode of cultivating this crop, which is particularly adapted to moist, cold, or tenacious soils, or to farms where manure is scarce, is illustrated by the following cuts, which also serve to show, with trifling variation, their mode of cultivating the potato, which is mostly managed with but little use of the hand hoe.

Fig. 21,



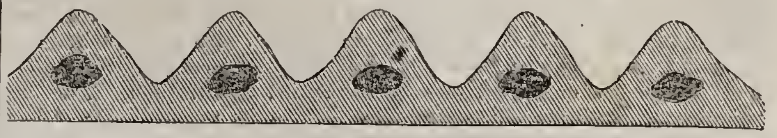
shows a transverse section of the ground when prepared for receiving the manure, it being gathered in one bout ridglets. The dung carts pass lengthwise, and the dung is dropped, or pulled out, into the furrows; lads or women follow the carts and spread out the dung from the little heaps along the hallow of each drill.

Fig. 22,



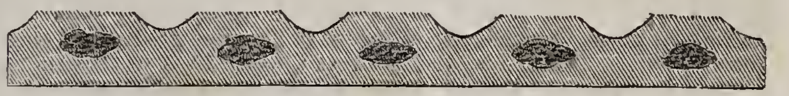
shows a cross section with the dung deposited. It is immediately covered by the plough, which, passing down the middle of each ridgelet, splits it into two, so that a new drill is formed, whose top is immediately above the former hollow of the old drill, thus—

Fig. 23.



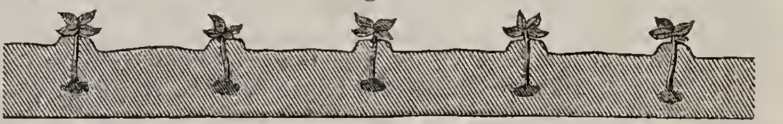
For this purpose the double mould board plough may be employed, but the single plough is preferred, as it does the work better, though it requires double the time. In the potato culture, the sets or seeds, are deposited upon the manure before it is covered with earth, at the distance of 8 to 10 inches. The turnip seed is sown upon the top of the ridges, above the manure, with a horse or hand drill, the former of which has a roller which precedes the coulters, and flattens the ridges, as shown in

Fig. 24.



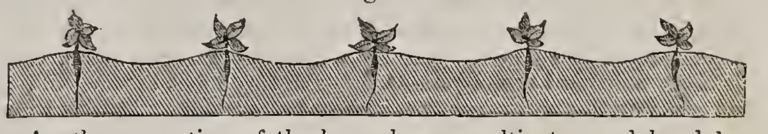
In the potato culture, in 10 or 14 days after the seed has been planted, the field is harrowed crosswise, which nearly levels the ground. In the turnip culture, as soon as the plants have assumed what is termed the rough leaf, and are about two inches in height, the process of hoeing commences. This is done by turning first a light shallow furrow from the plants, or by the horse hoe, or cultivator with lateral coulters. The field will then assume the appearance indicated in

Fig. 25.



The hand-hoes follow, and the remaining weeds are extirpated, and the plants thinned to a proper distance. A transverse section will then appear thus:

Fig. 26.



Another operation of the horse-hoe, or cultivator, and hand hoeing, 12 or 14 days after the first dressing, completes the culture ordinarily; though sometimes the horse-hoe is passed through the intervals a third time; and the earth is sometimes laid up to the stems of the plants by the double mould board plough at the third dressing, chiefly with a view of protecting the roots from wet and severe frosts, when they are intended to stand out during the winter.

To revert to the potato culture. When the plants have got above ground, and appear distinctly in rows, a light one-horse plough is passed twice along each interval, throwing a slight furrow from the plants, and the hand-hoers follow to complete the cleaning process. The cultivator may be substituted for the plough. After an interval of ten or fourteen days, a second cleaning is given with the horse and hand-hoes. This is generally sufficient to clean the land in an effectual manner. The last operation is raising the earth to the stems of the plants, which follows the last cleaning, which is done with either the double or single mould board plough. The peculiarities of this culture are, that the cleaning and earthing are done principally with the plough and horse-hoe, or cultivator, and that the earth is not thrown to the plants till the soil has been thoroughly cleaned.

NOTICES TO CORRESPONDENTS.

Cheap Paint.—A. Higgins inquires, in relation to Mr. Van Eps' cheap paint, described in our February number, 1. Whether water lime and water cement are the same? They are. 2. Whether the water lime is to be mixed with skimmed milk *only?* We understand that the lime and milk are the only materials employed. And 3. Whether it will not be likely to be washed off by rains before it has thoroughly dried? We think not, if used in fair weather; and if we are wrong, Mr. Van Eps will set us right.

Marl.—We have received samples of marl from the neighborhood of Schenectady, and from Cortlandville; and as soon as we can obtain an analysis, we will notice the results. The subject of marling has become one of deep interest, and every farmer who has this mineral should promptly test it upon his soil, leaving an adjoining section unmarled. This is the best test of utility. An experiment, or a a number experiments, upon different soils, will cost but little labor; and the results may lead to very important advantages. The distinguishing characteristic of marl is lime in its natural state. Dry a sample, and pour upon it strong vinegar. If it contains lime it will effervesce—the vinegar having a stronger affinity for the base than carbonic acid with which it is naturally combined, the latter is driven out, which causes the ebullition. The richness of the marl depends in a measure on the proportion of lime which it contains. The books tell us, that the lime should amount to thirty per cent to render it worth applying. But the books are wrong: for even sand upon clay, or clay upon sand, are beneficial applications to improve the soil; the only question being, how far the benefits will repay the expense of application. The earthy materials of the soil are to plants, what the stomach is to animals—the recipient of food, and the laboratory of the main process of nutrition. The presence of clay, lime and sand, are all essential in the soil, to enable it to perform its healthful functions. Where either of these is naturally deficient, it may be artificially supplied with manifest advantage. The mere earths are no more the *food* of vegetables, though some contend that they are requisite to give firmness to their structure, than the coats of the stomach, or the gastric juice are food to the animal—animal and vegetable matters, or their elements, constituting the true food of animals and plants.

In reply to Mr. Loomis' other inquiries, we remark, that we know of no *certain* preventive of the ravages of the turnip fly. Our practice is, to make the ground rich, and to sow thick and late. We have not lost a crop by the fly in fifteen years. The orange carrot *is* a field carrot. This crop should be sown in drills, at eighteen to twenty-four inches apart, and thinned to six or eight inches in the row. No preparation of the seed is required. The subject of teazles shall receive an early and more detailed notice.

The potency of New-Jersey marl, in imparting fertility and value to light or exhausted lands, is fully illustrated in another column. Samples of this marl may be seen at the Cultivator office.

Madder.—We have complied with the requests of C. T. Smith, and S. L. Loomis, in publishing, from Radcliff's Flanders, rules for managing the madder crop, though the requests did not reach us in time for our May number. It is not wholly the Flemish mode. The Flemings plant in beds two and a half and three feet broad, and gather the crop the second year. Ten or twelve days after the roots are gathered, they put them in an oven moderately heated, and when sufficiently dried, gently beat them with a flail, to get rid of the clay that may adhere to them. The roots are then ground and sifted, dried again in the oven for a short time, and then spread upon a hair cloth to cool. The madder is afterwards carried to a bruizing mill, reduced to a fine powder, and packed in barrels for market.

Woad.—We propose, in our next, to publish, in compliance with the request of Milo Bartholomew, and for the general information of our patrons, directions for cultivating woad, for preparing woad cakes, and the mode of extracting indigo from the woad. This dye weed, we believe, may be profitably raised by our farmers; the manufacturer's demand for it is daily increasing; and its culture is becoming important in a national point of view.

Liming.—John Smith, of Morristown, N. J., gives us his experience in applying lime to low-land, the effect was to double the crops of buckwheat and corn, which were subsequently taken from the ground. As Mr. S. has omitted to state the quality of the soil, or the contents of the field on which he applied fifty bushels of lime, we content ourselves with this notice of his communication.

Analysis of Soils.—In compliance with the request of L. B. Armstrong, we give directions for analysing soils. We extract them from a treatise on agriculture, written by Gen. John Armstrong. It is the mode recommended by the French chemists.

"1st. Take a small quantity of earth from different parts of the field, the soil of which you wish to ascertain, mix them well together and weigh them; put them in an oven heated for baking bread, and after they are dried weigh them again; the difference will show the *absorbent power of the earth.* When the loss of weight in 400 grains amounts to 50, this power is great, and indicates the presence of much animal or vegetable matter; but when it does not exceed 20, the absorbent power is small, and the vegetable matter deficient. [See also Davy's elements.]

"2. Put the dried mass into a vase, with one-fourth of its own weight of clear water; mix them well together; pour off the dirty water into a second vase, and pour on as much clear water as before; stir the contents, and continue this process until the water poured off is as clear as that poured on the earth. What remains in the first employed vase, after these washings, is *sand, silicious or calcareous.*

"3. The dirty water, collected in the second vase, will form a deposit, which, after pouring off the water, must be dried, weighed and *calcined,* that is, reduced to a powder. On weighing it *after* this process, the quantity lost will shew the quantity of *animal and vegetable mould contained in the soil:* and

"4. This calcined matter must then be carefully pulverized and weighed, as also the first deposit of sand, but without mixing them. To these apply, separately, sulphuric acid, and what they (the earths and acids together) lose in weight, indicates the portion of *calcareous* earth contained in them. What remains in the first vase, after deducting the lime, is silex; that in the other, alumina." Carbonate of lime, termed calcareous earth, is composed of 55 parts of lime and 45 parts of carbonic acid; this acid is displaced and driven off by the muriatic acid, in consequence of its stronger affinity for the base. Hence if the earths and acid weigh 45 grains less after the mixture than before, supposing the quantity experimented upon to be 400 grains, it shows that 45 grains of carbonic acid has been driven off, and that the soil contains 25 per cent of calcareous earth, or one-fourth. The proportion of this earth in good soils, varies from 10 to 30 per cent.

To analyse Marl.—Pour a few ounces of diluted muriatic acid into a flask, place them in a scale, and let them be balanced. Then reduce a few ounces of dry marl into powder, and let this powder be gradually thrown into the flask, until, after repeated additions, no farther effervescence is perceived. Let the remainder of the powdered marl be weighed, by which the quantity projected will be known. Let the balance be then restored. The difference in weight between the quantity projected and that requisite to restore the balance, will show the weight of air (carbonic acid gas) lost during effervescence. If the loss amounts to 13 per cent, or from 13 to 32 per cent, the marl assayed is calcareous marl, or marl rich in calcareous earth. Clayey marls, or those in which the argillaceous ingredient prevails, lose only 8 or 10 per cent of their weight by this treatment, and sandy marls about the same proportion. The presence of much argillaceous earth may be judged of by drying the marl, after being washed with spirit of salt, (muriatic acid,) when it will harden and form a brick—*See Orfila's Practical Chemistry.*

A correspondent, J. A. writes, "among the machinery mentioned in the Cultivator, *Concklin's Revolving Press Harrow,* is a great desideratum in farming, and to the ordinary roller adds many, if not all the advantages, of Gen. Beatson's Scarifying Machines. Can this be had at Albany or its neighborhood?" We answer, not at present; but some are soon expected. Again. "If the *Mowing Machine* be found to do its duly well, the owners of grass farms will become rich, besides getting rid of much human machinery, which is often difficult to obtain, and when obtained, very troublesome and vexatious."

Benefit of clay to farm stock in winter.—We have often been told of the efficacy of clay to farm stock, and particularly to sheep, in winter; that it served as a salutary corrective to the animal stomach, when surcharged with acid, or its healthful powers otherwise deranged. A communication which we solicited from Dr. Butler, of Oxford, which related to the experience of Mr. G. Vanderlyn, was inadvertently omitted in our last. We have since been favored with a communication from Mr. Vanderlyn, on the subject, which will be found under the head of correspondence. The subject is worthy of the attention, and we think experiment, of the cattle and sheep farmer.

COL. POWELL'S STOCK.

Among the earliest importers of the improved Short Horn Cattle, was Col. John Hare Powell, of Philadelphia. At great expense, and with great care in his selections, he made two or three importations between 1820 and 1830; and many of the finest animals in our country may be traced back to his stock. Col. Powell being about to relinquish his farming, to travel in Europe, has sold off his remaining stock at auction. We are indebted to our friend, Dr. Mease, for a catalogue of these fine animals, with the prices at which they sold, and the names of the purchasers, which latter were, we understand, mostly from the western states. We subjoin a part of the schedule, to advise our readers of the high value to which the short horns have attained.

	Animals.	*Purchasers.*	*Price.*
No. 1.	Mandane, imported bull,	Mr. White,	$600
2.	Ohio, 17 months old,	" Neff,	700
3.	Mandane II. 2 years old,	" Gratz,	510
4.	Bellina II.	" Gratz,	560
5.	Bellina III. calf,	" Neff,	300
6.	Bertram II. 2 years old,	" Crugar,	500
7.	Desdemona II. 2 years,	" Martin,	480
8.	Bertram IV. calf,	" Purvis,	260
9.	Virginia II.	" Gratz,	500
10.	Virginia III. 2 years,	" Purvis,	440
11.	Florinda II. 2 years,	" Brent,	590
12.	Adonis II. 18 months,	" Denney,	260
13.	Blockley, 10 months,	" Martin,	305
14.	Lubin, 10 months,	" Morgan,	205
15.	Denton, II. 10 months,	" Fitzhugh,	300
16.	Burletta II. 3 years,	" Martin,	340
17.	Ruby II. 3 years,	" Brent,	290
18.	Defiance, 9 month,	" Barney,	270
19.	Powelton,	" Harris,	180
20.	Daphne,	" Neff,	100
21.	Daphne II.	" Barney,	185
22.	York Belle, 2 years,	" Barney,	155
			$8,030

The whole lot averaging 365 dollars each. Who, after this, will doubt the propriety, or the profit, of rearing this valuable breed of animals.

A correspondent, who was present at Mr. Powell's sale, has kindly handed to us the following remarks:

"The animals were in fine condition, and were very much admired by the numerous spectators. Mr. Powell certainly deserves great credit for his liberal exertions to introduce this superior breed of cattle into this country; and the above catalogue of his sale, will show how far he has been remunerated for his expense and trouble. Much benefit may be expected from the distribution of this herd. They were confined, however, to Connecticut, New-Jersey, Pennsylvania, Ohio and Kentucky.

"Although the prices for which they were struck off, would appear high to many, still, they are much below what the same blood could be obtained for in England. Those imported by the Ohio Co. and passed through this city last summer, would not compare with these in symmetry of form or blood-like appearance, although they were obtained at high prices.

"The great objections to the colour of this breed are fast giving way, and the time is not far distant when the *pure unalloyed* Durhams will supersede the present race now in this country. Ohio and Kentucky have entered into the spirit of improvement with a zeal and determination, highly to be approved of; and they now possess more of that breed than all the other states put together. Other states will follow the example, and the demand will increase. The importance of breeding from animals with correct and pure pedigrees, are beginning to be appreciated. Is he or she, as the case may be, thorough bred, and can you give a full pedigree? is the first question now asked. In England they are as tenacious of the pedigree of their cattle, as the Arabs are of their horses."

GEOLOGICAL SURVEY.

Our legislature have passed an act providing for a geological survey of the state. Similar surveys have already been made in the states of Massachusetts, Maryland, Virginia, and we believe Tennessee. The Highland Agricultural Society of Scotland have directed their attention to like surveys, and some luminous reports have already been rendered. From one of these, Mr. Miln's, on the geology of Berwickshire, we make the following extract, showing some of the benefits to *agriculture*, which are likely to result from geological surveys.

"The connexion between agriculture and geology being thus so close and apparent, the only remaining question is, in what way can a knowledge of geology be rendered practically useful to the farmer? A few observations may now be added on this head.

"1. The farmer, knowing, from experiments or observation, the soils which are best fitted for agricultural purposes, should ascertain what the rocks are in any particular district, and whether they are such as are likely to produce, by their disintegration, rich and abundant crops. If the rocks are entirely siliceous, he ought to add alumine and carbonate of lime in certain proportions to the soil, in order to effect a proper admixture. If, in like manner, there is too much argillaceous matter supplied by the subjacent strata, in consequence of which the soil is wet and otherwise unfavorable, then he should correct the evil by the addition of sand.

"But how little are these things attended to by farmers! The only mineral substance which they ever think of adding to their land is *lime*, and that without any attempt or desire previously to find out, whether there may not be already more than enough of calcareous matter in the soil, and whether it would not be less expensively and more effectually improved by the mixture of some other substance.

"2. The agriculturist, if he knows the *formations* in different parts of the country, with the character of which he is not otherwise acquainted, is thus enabled to select that part which is most likely to yield a fertile soil; and the same remark which applies to a person who is about to commence *farming* operations in an unknown district, applies also to the case of a person purchasing an estate. If he is desirous of having land capable of yielding luxuriant crops, he will prefer the new red sandstone district, and avoid the coal-measures. If he is in search of rich sheep pastures, he will select the trap hills and not the greywacke, far less the granitic chains. Such information may, no doubt, be of less use in a country like Great Britain, where every facility exists for the examination of the soil itself; but it is easy to see how a knowledge of the rock formations may, both to farmers and intending purchasers, be of the greatest use in unknown regions of the earth, such as Canada, America, and New South Wales, where no other means exist of discovering previously the productiveness of the land.

"3. Nothing to the farmer is so important as a knowledge of the causes of wetness and dryness in the soil, and of the means which he should adopt to correct any excess of either. Some of his crops may bear or require a drier soil than others; and if he knows the nature of the rocks which occur in different parts of his farm, he will also know those parts of it where the water will easily escape of itself through the subjacent strata, and those where he must himself supply those means of drainage which nature has denied. At the same time he is enabled to select those parts of the soil which, by their natural dryness or moisture, are the best adapted for particular crops.

"4. A knowledge of the position of the strata also enables the farmer to obtain a supply of water when he requires it, and thereby to save him much trouble and expense in searching for it. For if he makes himself acquainted with the nature, direction, and dip of the rocks, he can tell in what direction the water which filters through the soil will run, and whereabouts it will probably burst out in the form of a spring.

"It is known to Berwickshire farmers, that drains which run in a north and south direction, do not carry off from the land one-half the quantity of water, which drains running east and west carry off. One reason probably is, that as in the former case the drains cross the croppings of the strata, the water escapes between their edges; whereas the drains that run east and west are parallel with the edges of the strata. Another reason may be found in the fact, that the greater part of Berwickshire consists of undulating ridges, which run east to west;—so that the drains that are cut in that direction are necessarily longer, and collect more water than the drains which cross these ridges.

"5. To an agriculturist, and especially to landlords who are anxious to improve their estates, by building offices and walls, a knowledge of the places where good building materials may be found and quarried, is of the greatest consequence. But without some acquaintance with the nature and relative position of the rocks in a district, it is quite impossible to discover the particular spot where stone can be found, and to what depth it must be bored for.

"These are a few of the most obvious advantages which would result to agriculturists, if their art were aided by a knowledge of geology. Into this subject, however, the author forbears to enter at greater length; for he finds that his paper has already exceeded all reasonable limits. But enough has been said, it is hoped, in the brief though imperfect sketch which has been given, to shew the great expediency of promoting that union between the sciences of Geology and Agriculture, which it is the patriotic object of the Highland and Agricultural Society of Scotland to effect."

Sweet apples.—We have frequent inquiries, as nursery men, for trees of sweet apples, to cultivate for hogs and other farm stock, as though none but *sweet* apples were fit for this purpose. This opinion originates from a misapprehension of the qualities of the apple. In the first place, the nutritive property of the apple consists principally in the saccharine matter which its contains. This is determined by the specific gravity of its juice—the *heavier* this, the more saccharine matter it contains. Now the heaviest juice is found in acid as well as in sweet apples; hence sour apples are as nutritive as sweet apples. The acid is superadded to the sweet. In the second place, sour apples are as grateful to the human stomach, and so they are to the stomachs of our farm stock, as sweet apples are, and a mixture is at least desirable. Sweet apples alone soon cloy the stomach. A friend related to us, a few days ago, that he last year turned his hogs into his orchard, to eat the falling fruit; that the orchard being large, the hogs were able to consume only a part of the apples; that he several times went into the orchard to ascertain which they preferred, the sweet or sour; that he uniformly found, that they selected from both, and that they rejected as many of the sweet as of the sour. Hence sour apples are as nutritious, and as palatable, to man and beast, as sweet apples, and ought to be as extensively cultivated.

Value of Manure.—The best criterion of the intrinsic value of manure, is the price it bears in the best cultivated agricultural districts. We consider Flanders of this description. Manure there is an article of commerce; and the towns and villages contribute, by the quantities of it they furnish, to fertilize the country. We quote from Radcliff, the prices which the various manures bear in Flanders, to show their intrinsic worth in husbandry, and to stimulate our farmers to become provident of these means of fertility and profit.

Farm-yard manure, per load of 1,300 lbs.,		$0 94
Dung of sheep, pigeons and poultry,	do. do.	1 06
Sweepings of streets, &c.,	do. do.	0 66
Ashes, peat and wood mixed,	do. do.	1 62½
Privy manure and urine,	do. do.	1 42
Lime,	do. do.	2 28

Sheep.—A correspondent to the Tennessee Farmer recommends the following application to sheep: "When the sheep is shorn, dip a cloth in soft soap, and rub the sheep all over—then dip the cloth in warm water, and give the sheep a complete lather, and let it go."

AN ESSAY ON GRASSES.—*(Concluded from page 49.)*

SEC. II.—*Grasses chiefly adapted for pasturage.*

Of pasturage grasses, we shall make a selection of such as have been tried to some extent, and of which the seeds are in the course of commerce, (in England.) On soils in good condition, and naturally well constituted, no better grasses can be sown for pasturage than those we have described as tall grasses for hay meadow; but for early and late pasturage, and on secondary soils, there are others much more suitable.

The pasture grasses for early pasturage on all soils, are the anthoxanthum odoratum, holcus odoratus, avena pubescens, and poa annua.

The pasture grasses for late herbage on all soils, are, chiefly, the different species of agrostis and phleum.

The pasture grasses for poor or secondary soils, are the cynosurus cristatus, festuca duriuscula and ovina, poa compressa, cristata and angustifolia.

The grasses that afford the most nutritive matter in early spring, are the fox-tail grass and the vernal grass.

The sweet-scented vernal grass, (*Anthoxanthum odoratum*,) is common in almost all the pastures in England, and gives fragrance to natural or meadow hay. This grass is of diminutive growth, but is esteemed for pasture on account of its early growth. We are advised by Muhlenburgh, that it delights in moist soils; by the Bath papers, that it does well in clayey loams; and by Dickson, that it grows in almost any soils, including sands and bogs. The seed of this grass is sold at the seed shops in New-York, Philadelphia and Boston.

The downy oat grass, (*Avena pubescens*,) possesses several good qualities; is hardy, early, and more productive than many others, which affect similar soils and situations. It appears well calculated for permanent pasture on rich light soils.

The annual meadow grass, (*Poa annua*,) is the most common of all grasses, and the least absolute in its habits. It hardly requires to be sown, as it springs up every where.

The fine bent grass, (*Agrostis vulgaris*,) is, according to Eaton, the *red top* of our meadows. Loudon calls it one of the earliest grasses.

The narrow leaved meadow grass, (*Poa angustifolia*,) is remarkable for the early growth of the leaves, which have sometimes grown, by the middle of April, more than twelve inches.

The tall oat grass, (*Avena elatior*,) deserves, according to Muhlenburgh and John Taylor, to be placed at the head of good grasses. On the continent of Europe, in comparison with common grass, it is found to yield, according to Dickson, in the proportion of twenty to two. Dr. Muhlenburgh says it is, of all others, the earliest and best grass for green fodder and hay. It possesses the advantage of early, quick and tall growth, for which the cock's-foot is esteemed; tillers well, and is admirably well calculated for pasture. We have seen it on the 20th June, four and a half feet high. The leaves are narrow and fine, resembling some of the poa family. The lattermath, it will be perceived, is nearly equal in weight, and superior in nutriment to the seed crop. Although Loudon is silent as to its merits, Dickson speaks well of it; says it makes good hay; but is most beneficial when retained as pasture. Sinclair says it thrives best on tenacious clay; and Muhlenburgh prefers for it a clover soil. The seed is sold at the shops.

The upright bent grass, (*Agrostis stricta*,) is, according to Muhlenburgh, the herds-grass of the southern and the fowl meadow of the eastern states, and the white-top and red-top mere varieties, under different names, of upright bent grass. This grass, embracing both varieties, is common in the U. States, and is considered valuable for hay as well as pasture, on grounds adapted to its growth, which are moist lands, and particularly reclaimed swamps and rich swales.

Flat stalked meadow grass, (*Poa compressa*,) is the blue grass which is considered a pest in much of our tillage land, from which circumstance it may be inferred, that it is a valuable species in pastures on similar soils. It gives but a small crop, but this is highly nutricious.

American cock's-foot, (*Dactylis cynosuroides*,) is only known from the Woburn experiments. It is an American species. M'Mahon terms it the *swamp cock's-foot*. As it affords an abundant crop, we hope soon to see it brought into further notice.

The best natural grounds of England, examined carefully during various periods of the season, were found, by Sinclair, of Woburn, to consist of the following plants:

Alopecurus pratensis,
Dactylis glomerata,
Festuca pratensis,
Phleum pratense,
Anthoxanthum odoratum,
Holcus avenaceus.
Vicia sepeum,
Lolium perenne,
Bromus arvensis, (frequent,)
Poa annua,
Avena pratensis,

These afford the principal grass in the spring, and also a great part of the summer produce.

Avena flavescens,
Hordeum pratense,
Cynosurus cristatus,
Festuca duriuscula.
Poa trivialis,
Poa pratensis,
Holcus lanatus,
Trifolium pratense,
Trifolium repens,
Lathyrus pratensis,

These yield produce principally in summer and autumn.

Achillea millifolium,
Triticum repens.
Agrostis stolonifera and palustris,

These vegetate with most vigor in autumn.

Ranunculis acris,
Plantago lanceolata,
Rumere acetosa.

The first and last of these plants are to be considered as injurious, and the other is of little value as herbage.

The above mixture, sown at the rate of four and five bushels to the acre, on well prepared soil, without corn or other crop of any kind, could hardly fail of producing excellent pasture the following year, and for an endless period. The best time for sowing, is July or August, as spring sown seeds are apt to suffer with the droughts of June and July.

Of late pasture grasses, the different species of cat's-tail (*phleum*,) and bent grass (*agrostis*,) are the chief, and especially the timothy and fiorin grass. The grasses, Sir H. Davy observes, that propagate themselves by stolones, the different species of agrostis, supply pasture throughout the year; and the concrete sap, stored up in their joints, renders them a good food, even in winter.

Of pasture grasses for inferior soils, one of the most durable is the dog's-tail, (*Cynosurus cristatus*.) This is a very common grass on dry, clayey or firm surfaces, and is one of the best kinds for parks.

The hard fescue grass, (*F. duriuscula*,) is one of the best of the dwarf grasses. It is grateful to all kinds of cattle. It is present in most good meadows and pastures, and with F. ovina, is the best for lawns.

The festuca glabra and hordiformis, greatly resemble the hard fescue, and may be considered equally desirable as pasture and lawn grasses.

The yellow oat grass, (*Avena flavescens*,) is very generally cultivated, and appears to be a very valuable grass for pasture on a clayey soil.

SEC. III.—*General view of the produce, uses, character, and value of the principal British grasses, according to the result of John, Duke of Bedford's experiments, at Woburn.*

In all permanent pastures, Sir H. Davy observes, nature has provided a mixture of various grasses, the produce of which differs at different seasons. When pastures are to be made artificially, such a mixture ought to be imitated; and, perhaps, pastures superior to the natural ones may be made, by selecting due portions of those species of grasses fitted for the soil, which afford respectively the greatest quantities of spring, summer, lattermath and winter produce; a reference to the results of the Woburn experiments, he adds, will show that such a plan of cultivation is very practicable.

TABLE OF THE GRASSES EXPERIMENTED UPON AT WOBURN.

BOTANIC AND ENGLISH NAMES.	Natural duration.	Height in wild state in inches.	Soil employed.	When weighed.	Grass on four square feet.	W't per acre when green.	W't per acre when dried.	Loss in drying.	64 drms. gave of nutritive matter.		Nutritive matter in one acre.	When in flower.	When in seed.	Proportionate value which the grass bears at the time of flowering to that which it bears in time of seeding.	When best cut for hay.	General character.
					oz.	lbs.	lbs.	lbs.	dr.	gr	lbs.			Flower. Seed.		
Anthoxanthum odoratum*—Sweet-scented vernal grass,.	Per.	12	Sandy loam.	In flower	11	7827	2103	5723	I	0	122	Ap. 29	June 21	4 to 13	In seed.	Early pasture grass.
				In seed.	9	6125	1837	4237	3	1	311					
				L. math.	10	6806	......	......	2	1	239					
Holcus odoratus, Host.—Sweet-scented soft grass,.	Per.	14	Rich sand loam.	In flower	14	9528	2441	7087	4	1	610	Ap. 29	Junc 25	17 to 21	In seed.	The most nutritive early grass.
				In seed.	40	27225	9528	17696	5	1	2233					
				L. math.	25	17015	......	......	4	1	1129					
Alopecurus pratensis—Meadow fox-tail,	Per.	24	Clay loam.	In flower	30	20418	6125	14293	1	2	270	May 30	June 24	9 to 6	In flower	One of the best meadow grasses.
				In seed.	19	12931	5819	7111	1	1	461					
				L. math.	12	88167	......	......	2	0	255					
Poa pratensis*—Smooth-stalked meadow grass, ...	Per.	18	Bog earth & clay	In flower	15	10209	2871	7337	1	3	279	May 30	Juy 14	....	In flower	Good early hay grass.
				In seed.	12	8507	3403	5104	1	2	199					
				L. math.	6	4083	......	......	I	3	111					
Aocua pubescens*—Downy oat grass,..	Per.	18	Rich sand loam.	In flower	23	15654	5870	9783	I	2	366	June 15	July 3	6 to 8	In seed.	Good pasture grass.
				In seed.	10	6806	1361	5445	2	0	212					
				L. math.	10	6806	......	......	2	0	212					
Poa trivialis*—Roughish meadow grass,	Per.	20	Manured lt. loam.	In flower	11	7487	2246	5240	2	0	233	June 15	Juy 10	8 to 11	In seed.	Good on rich moist soils.
				In seed.	11	7827	3522	4304	2	3	336					
				L. math.	7	4764	......	......	3	0	223					
Agrostis stricta—Upright bent grass,*..	Per.	9	Bog soil.	In flower	11	7486	2713	4772	1	2	446	Juy 28	Au. 30	8 to 5	In flower	
				In seed.		4764	1310	3454			260					
											47					
Festuca rubra*—Purple fescue grass,..	Per.	12	Light sand.	In flower	15	10209	3557	6651	1	2	239	June 20	Juy 10	6 to 8	In seed.	Good long gr.
				In seed.	16	10890	4900	5989	2	0	340					
				L. math.	5	30403	......	... ..	1	2	79					
Festuca ovina—Sheep's fescue grass,..	Per.	6	Light sand.	In flower	...	......	......	......	.....		....	June 24	Juy 10	....	....	Good long gr.
				In seed.	8	5445	.....	......	....		127					
				L. math.	5	3403	......	.... .	.....		66					
Dactylus glomerata*—Rough head, cock's-foot grass, ...	Per.	24	Rich sand soil.	In flower	41	27905	11859	16045	2	2	1089	June 24	Juy 14	5 to 7	In seed.	A most productive grass, but coarse.
				In seed.	39	26544	13272	13272	3	2	1451					
				L. math.	17	11910	......	......	I	2	281					
Poa augustifolia—Narrow-leaved meadow grass, ...	Per.	24	Brown loam.	In flower	27	18376	7810	10566	5	0	1430	June 28	Juy 16	3 to 2	In flower	Excellent hay grass.
				In seed.	14	9528	3811	5717	5	1	701					
				L math.	...	......	......	......	.....		....					
Trifolium pratense—Red Clover,......	Bien	....	T. cl'y	In seed.	72	49005	12251	3675	2	2	1914	Juy 18	Aug. 6	....	In flower	
Medicago sativa—Lucerne, Fr. clover,.	Per.	36	Cl. l'm	In seed.	104	70785	28314	4271	I	2	7659	Juy 18	Aug. 6	....	In flower	Best for soil'g
Hedysarum onobrichis—Sainfoin,.....	Per.	....	Cl. l'm	In seed.	13	8848	3539	5308	2	2	345	Juy 18	Aug. 8			
Festuca duriuscula*—Hard fescue grass,	Per.	12	Sandy loam.	In flower	27	18376	8269	10116	3	2	1004	July 1	Juy 20	14 to 6	In flower	Good for hay or pasture.
				In seed.	28	19075	8575	10481	1	2	446					
				L. math.	15	10209	......	......	1	1	199					
Festuca pratensis—Meadow fescue gr..	Per.	30	Bog soil.	In flower	20	13612	6465	7046	4	2	957	July 1	Juy 20	18 to 6	In flower	Excellent for early hay.
				In seed.	28	19057	7623	11435	1	2	446					
Lolium perenne—Perennial rye grass,..	Per.	24	Rich brown loam.	In flower	11	7827	3222	4494	2	2	305	July 1	Juy 20	10 to 11	In seed.	Generally esteemed.
				In seed.	22	4492	4492	10481	2	3	643					
				L. math.	5	3403	......	......	1	0	53					
Festuca loleacea—Spiked fescue grars,.	Per.	36	Rich brown loam.	In flower	24	16335	7146	9188	3	0	765	July 1	Juy 28	13 to 12	In flower	Most valuable for hay & pasture.
				In seed.	16	10890	4492	6397	3	1	553					
				L. math.	5	3403	......	......	1	1	166					
Avena elatior—Tall oat grass, ...	Per.	50	Brown loam.	In seed.	24	16335	5717	10617	1	0	255	July 6	Juy 28	....	In seed.	Good long gr.
				L. math.	20	13612	....	......	1	:	265					
Festuca elatior*—Tall fescue grass, ...	Per.	36	Black rich loam.	In flower	75	51046	17866	33180	5	0	3988	June 28	Juy 16	20 to 12	In flower	Ex. mead. gr.
				In seed.	75	51046	17866	33180	3	0	2392					
				L. math.	23	15654	......	......	4	0	978					
Festuca fluitans*—Floating fescue grass,	Per.	18	St. cly	In flower	20	13612	4083	9528	1	3	372	Juy 14	Au. 12	....	....	Aquatic gr.
Holcus lanatus*—Meadow soft grass,..	Per.	24	St. cly loam.	In flower	28	19057	6661	12395	4	0	1191	Juy 14	Juy 26	12 to 11	In flower	Early and productive.
				In seed.	28	19057	3811	15246	2	3	898					
Poa fertilis, Host.—Fertile meadow gr.	Per.	20	Cl. l'm	In flower	22	14973	7861	7111	4	2	1052	Juy 14	Juy 28	.. ..	....	An early gr.
Phleum pratense—Meadow cat's tail gr.	Per.	24	Clay loam.	In flower	60	40837	17355	23481	2	2	1595	Juy 16	Juy 30	10 to 23	In seed.	Ex. for hay.
				In seed.	60	40837	19397	21439	5	3	3668					
				L. math.	14	9528	......	......	2	0	297					
Avena flavescens—Yellow oat grass,...	Per.	18	Clay loam.	In flower	12	8167	2858	5308	3	3	478	Juy 24	Au. 15	15 to 9	In flower	Valuable gr.
				In seed.	18	12251	4900	7350	2	1	430					
				L. math.	6	4083	......	......	1	0	79					
Agrostis vulgaris—Fine bent grass,....	Per.	18	S. soil.	In seed.	14	9528	4764	4764	1	2	251	Juy 24	Au. 20	....	....	An early gr.

Thoso marked with an * are natives of the United States.

NEW GRASSES.

Italian Rye Grass.—This newly introduced grass, (*Lolium Italicum,*) has withstood the winter with us, contrary to our expectations, having twice before failed. If it shall prove sufficiently hardy, we do not hesitate to pronounce it a valuable acquisition to our husbandry. It arrives at maturity sooner after sowing than any other perennial grass, and its produce nearly doubles that of common rye grass. It has ripened two crops of seed in Scotland.

Siberian Lime grass, (*Elymus Sibericus,*) yields a great bulk of produce, and is well liked by cattle—of recent culture.

Alsike clover, (*Trifolium hybridum,*) which grows wild in the north of Europe, and is intermediate between the common red and white species, is attracting the attention of European agriculturists. "Its properties of growing higher, having its leaves more luxuriant, and striking its roots deeper, and remaining longer in the ground than the common clover," says the Edinburgh Quarterly Journal of Agriculture, "render it not only suitable for hay, but for laying down land to permanent pasture." It is cultivated in Sweden, Denmark, Flanders, and some of the German States. A Swedish nobleman, who has cultivated it twenty years, commends it by saying, that "if sown in well managed land, of not too strong a nature, it yields a crop of hay of from 360 to 540 imperial stones per imperial acre, (from 5,040 to 10,560 lbs. say from 2½ to 5½ tons the common acre.) The seed is sown in the spring.

From a course of experiments made under the direction of the Duke of Buccleugh, in Scotland, it is found that among the grasses best adapted for the shade or drip of trees, some of the poas, or spear grasses, the orchard grass, tall fescue and woolly meadow grass, are preferred, and that the sweet-scented vernal grass and timothy come next in order.

CORRESPONDENCE.

PROOFS OF THE UTILITY OF MARL.

Hights Town, N. J. April 15, 1836.

Dear Sir—In my last communication I stated, that at some future time I would give you an account of the benefits resulting from the use of the Squancum marl. I cannot attempt a chemical analysis, but merely describe the tests of *old mother earth*, the great practical *solvent* of all compounds.

1. Mr. William T. Sutphin, distant eight miles from these marl pits, about six years ago purchased a farm, consisting of 200 acres—gave $4,000; this spring he says he has refused $15,000.

2. Mr. Job Emmons, seven miles from the marl pits, about six years ago, wishing to go to the distant west, where land was cheap and better, he put up his farm at auction (130 acres); the highest bid was $1,350; he offered it for $1,600, but no one would give it. Being disappointed in selling, he commenced marling; last year he cut more than one hundred tons of good hay, and now refuses $7,000 for the farm, having all the benefits of the mighty west without going there.

3. Judge Simpson, nine or ten years ago, purchased 175 or 200 acres—gave five dollars and sixty cents per acre at the time the land was scarcely worth the tax; he can any day have sixty-five dollars per acre.

4. Judge Wm. Bown, seven miles from the pits, a few years ago, purchased 175 acres for $4,000; this spring he has refused $10,000.

5. Mr. Smock purchased about 300 acres for $3,100, in 1832, on which his son resides, distant about two and a half miles from his own farm, on which he has most valuable marl, some ten or twelve miles from the Squancum marl pits, and supposed very little inferior. The occupant sold a great quantity of grass standing, last summer, for seventeen dollars per acre. Mr. Smock's homestead farm he purchased in dear times, (24 years ago)—275 acres for $7,500; worth, independent of the marl pits, over $15,000, nor can any farm east of him, at this time, be purchased for $75 or $100 per acre.

6. Mr. Samuel Spencer, three and a half miles from the Squancum marl pits, nine or ten years ago, purchased a large farm, and gave fourteen shillings ($1.75) the acre, lately sold of the same one hundred acres for thirty-one dollars per acre.

These are a few facts that have come to my knowledge. All that region of country is improving in the same ratio. Who wishes a better chemical analysis than this? or who wishes to emigrate to the western wilderness for better land? The minds of men are ever subject to change. Is it not better for us to "be content with such things as *we* have?"

As soon as I can procure a spare copy of Rogers' Report, I will send you one, on the geological survey of New-Jersey.

The information I gave about the peach buds, was probably too unfavorable. All the young trees in this region of country are generally killed in the bud. The old trees becoming acclimated in the winter before last, have endured the late winter better. About one-half the buds on the old trees are good. Many large orchards in the county of Monmouth, to the eastward of us, I am informed, are perfectly good, and bloom buds uninjured; however, one easterly storm from the ocean, when these orchards are in full bloom, will destroy, in a night, like the angel of Egypt, all their hopes.

Respectfully, your obedient servant,

CHARLES G. McCHESNEY.

[We append to the communication of our correspondent. as pertinent to the subject, the following extracts from Prof. Rogers' Report.]

"Marl, or green mineral," says the Professor, "loses nothing of its potency by a long exposure, even of years, to water and the atmosphere; in other words, it is not dissolved, or decomposed, or changed, by the ordinary atmospheric agents which react so powerfully upon many other minerals, and consequently we are to regard it as nearly tact, with it to effect its decomposition, by the *vital* power of their organs, and imbibe a portion of some of its constituents.

"Mr. Woolley manured a piece of land in proportion of two hundred loads of good stable manure to the acre, applying upon an adjacent tract of the same soil his marl in the ratio of about twenty loads per acre. The crops, which were timothy and clover, were much the heaviest upon the section which had received the marl; and there was this additional fact greatly in favor of the fossil manure over the putrescent one, that the soil enriched by it was entirely *free of weeds*, while the stable manure rendered its own crop very foul.

"This being an experiment, an extravagantly large dressing of manure was employed, but not exceeding the usual average application; more than twenty loads of marl surpassed what was necessary for it.

"Experience has already shown, that land once amply marled, retains its fertility with a little diminution, for at least twelve years, if care be had not to crop it too severely, while with all practicable precautions the stable manure must be renewed at least three times in that interval to maintain in the soil a corresponding degree of vigor.

"The high and deservedly high name, which the Squancum marl now boasts, was an inducement to me to subject it to chemical examination, with special care and rigor. In external aspect it differs in no respect from many other marls of the state, and chemically studied, I do not find it to depart very materially from several others in the proportion of constituents, though it does most certainly possess an amount of potash in its composition not a little astonishing. Others, however, seem to have nearly as much.

"At the pits, which are very extensive, the marl is sold at the rate of 37½ cents the load.

"It is transported by wagons to a distance, in some directions of twenty miles, and retailed, when hauled that far, at the rate of ten or even twelve cents a bushel—being very profitably spread upon the soil in the small proportion of twenty-five, or even twenty bushels to the acre. The fact that so small an amount of this marl is found efficacious to the soil, which after two or three dressings is permanently improved, and to a high pitch, by it, furnishes me one consideration for supposing that too generally the marl is spread with a prodigality surpassing all the necessities of land.

"A specimen of the marl from Throp's lowest layer, yielded me, after reiterated trials, uniformly about the following, for its composition.

Silica	43.40
Protoxide of iron	21.60
Alumina	6.40
Lime	10.40
Potash	14.48
Water	4.40
	99.68 in 100 grains;

"Throughout all the district in which this deposite occurs, it is extensively employed in agriculture. In the neighborhood of Arney's Town, one of the points which I visited, it has been used as a manure for the last thirty years—but its general introduction is of more recent date. In the region in which the marl chiefly abounds, the soil is loamy, having in some places a large intermixture of tenacious clay. East of this tract, which is a narrow band nearly parallel to the Delaware river, the country assumes an appearance very similar to that of the sandy lands of Eastern Virginia, covered with a thick growth of pine, and camparatively unproductive. On both these varieties of soil the green sand is continually used with the most striking benefit. For the clay soils, the more sandy marls are of course preferred; and for the sandy soils, those which contain some clay along with the marl. The proportion in common use near Arney's Town, is from ten to twenty loads per acre. In other places five loads, or even less, is found to be sufficient. The action of the marl appears to be very permanent, as will be evinced by the following statement. In a large quadrangular field, over which I walked, four successive applications of the marl had been made at intervals of four years—commencing about twenty years ago. The first dressing was applied to the north side—the second to the south—the third to the east, and the fourth to the west—while a small space in the centre was left without any marl. All four sides were covered with a very heavy crop of clover, which was nearly, if not quite as luxuriant on the north as either of the other sides—while the space in the middle was almost bare. The action of the marl appears to be most powerfully felt by clover and grass—but it is very conspicuous also with small grain and corn.—A very intelligent farmer told me that it more than tripled his clover and grass crop, and doubled his small grain. In general it is spread upon the clover every fourth year, and ploughed in for the next crop. That it is very efficient upon sandy soils is evinced by the following striking fact. Some years ago, an enterprising farmer, near New-Egypt, purchased two hundred acres of the Pine Barren, which, by marling, he has converted into pasture sufficient for one hundred head of cattle. Such is the demand for the marl, even at a considerable distance, that it has become an article of great profit to the proprietors of the pits, and more than one individual was pointed out to me who had risen to wealth by the sale of marl."

THE WHEAT-WORM.

Jesse Buel—Having seen a call in one of the numbers of thy useful paper, the Cultivator, for information in relation to the weavel, or wheat insect, I send thee the result of my observations and discoveries, which, if not fully satisfactory to thy readers, I hope it will induce some of them to pursue my investigation, and if the farmers generally arrive to the same conclusion as myself, I think the time not far distant, when they will totally destroy the race of this destructive little foe.

In the first place, I have found that the insect which attacks the wheat is a small snuff-brown fly, which deposits its eggs in the hull of the wheat, when it is in the blow, the hull at that time being open. These eggs produce from three to fifteen little maggots to each deposit, and by the time the kernel gets to its milky state, they are sufficiently matured to convert it to their food. And as the wheat becomes hard, they are so far advanced in the stage of their existence, as to prepare for their next and more elevated state of life, in the form of the fly. To effect this, they form to themselves a covering or incrustation, which I shall compare to that of the cocoon of the silk-worm, in which they are protected for a next year's development. And in this dormant state they still remain in the hull of the wheat, to be brought forth by the re-animating heat of spring, in the most perfect form of this insect life, the small snuff-brown fly; but like all other insects, can at all times be brought to active life by a proper degree of heat. I have carefully watched the wheat from the time of heading to maturity, and have discovered the fly, in numerous instances, pushed into the hull of the wheat while in the blow, and on examining, could discover the small eggs, or deposit, which produces the little maggot, which we term the weavel. It is but a short time they remain in the active maggot form, but the precise time I cannot say, but probably about as long as the wheat remains in the milky state. A few years past, at the time of harvesting my wheat, the season of harvesting was very rainy, and I put my wheat into the barn very damp, which caused it to heat in the mow. In the course of the fall I had occasion to go to the upper part of the barn, and I found the inside of the roof literally covered with this same little fly, which had been prematurely hatched by the heat of the mow. I threshed the wheat by a machine, and on cleaning, got several quarts of the cocoons of the weavel, probably half of which were hollow, and the hole plain to be seen, where the fly escaped. The others were sound, and contained the insect in the same state of life as when it encased itself to be incubated by the heat of the next season. And this perfectly accounted for the innumerable swarm of flies which were in the roof of the barn.

In the spring following, or near the first of June, I was in my barn yard, where I had thrown out the straw of my wheat, and I found the heaps covered with the same kind of fly as was in the roof of the barn the fall before. And I have no doubt these flies were produced from the cocoon of the weavel, and like all other flies, live on putrifying and decaying substances; the manure of the yard affording them ample subsistence, as they at first cannot fly—neither could those in the roof of the barn.

Now I conclude that these flies are all hatched out about the same time, and at the usual season that wheat is in the blow, is the exact time when these flies, by a law of their nature, deposit their eggs for the continuance of their species. And this accounts for the fact, that very late sown wheat, and some peices of very early wheat, escape the time of their deposit. In proof of the foregoing, I will mention a corroborating circumstance, which happened to a friend of mine, the same season I have been mentioning. He went east to sell the right of a threshing machine. When in Orange county, in Vermont, wishing to show the powers of his machine, requested the privilege of threshing. A man, whose name I have now forgotten, told him he had a quantity of wheat which was very much destroyed by the weavel and mow heat, which he might thresh in welcome. Soon after he commenced threshing he found himself and machine covered with an immense quantity of small flies, which could not fly, which no doubt were the production of the weavel, and hatched in the fall by the heat of the mow.—The next parcel which he threshed, in the same neighborhood, and put up in good condition, produced no flies. I am particular in mentioning this fact, to show that the weavel is contained in the dormant state in the wheat, straw and chaff, and hatched in the spring following, from manure, barn litter, and heaps of straw; and is probably in the vigor of its life at the time wheat is in the blow, and at that time deposits its eggs to be hatched the next season; and that wheat in the soft state, is the only article proper for nourishing their young while in the maggot form, and affording them safe keeping through the winter.

Now should these become established facts, it is plain to be seen that the united exertion of the farmers can, in two or three years, totally destroy their race.

The manner of destroying which I propose, is to thresh the wheat in the fields, which may easily be done by threshing machines, and burn all the straw and chaff in the fields, and burn over his stubble ground. Let this be practised by every person who raises wheat, and in two years, I am bold to say, we shall not be troubled with the weavel. The wheat should be floured in the winter, and such as is kept for seed should be subjected to some process, to destroy what few insects might be lodged among it. But the farmers may rest assured, that the great evil of the insect is not in the seed wheat, but in the straw and chaff.

From thy friend, HENRY GREEN.

Kingsbury, Washington Co., N. Y., 5th mo., 16th, 1836.

GOOD SYSTEM OF FARMING—BENEFIT OF CLAY TO CATTLE AND SHEEP.

Oxford, Chenango, April 22, 1836.

Dear Sir—I have with few exceptions, pursued the alternate system of husbandry, always applying all the manure in its unfermented state to the first crop, which was a hoed or corn crop, which, when glazed, was cut up and removed, and the ground prepared by ploughing and harrowing for wheat, using the roller, and seeding with timothy if the field was intended for meadow, never taking more than two hoed crops, and one culmiferous, from the same field, and manuring generously for each hoed crop, expressly with a view to increase the fertility of the soil to such a degree, that I should not only receive in return an increased quantity of corn and wheat, but also of grass, of which I have mowed all of three tons per acre, on upland meadow. My method of making hay is, (the weather being favorable,) never to spread clover or timothy, but to make them in the swath and cock, which I am perfectly satisfied is not only the most economical, but also makes the hay, especially clover, worth much more than when spread to the full influence of the summer sun.

This county being by nature a grazing district, our farming operations tend to the growing of cattle and sheep, and to the dairy. In the winter of 1819, the hoof-ail, as this disorder is commonly called amongst farmers, prevailed to an alarming extent in this town; some farmers lost more than one-half of their cattle, attributing the effect to different causes. I had at this time only nineteen head of cattle on my farm, which were kept confined to the barn-yard, and only out of it when going to and coming from water. They were watered at a trough standing near an old log-house; and as some farmers attributed the disorder to their cattle being fed with June or spear grass hay, the ends of which were black with ergot, which was the case with mine, I therefore, the more closely observed the habits of the animal subject to such a disorder, and observed that they would very often, after they had drank, turn to the old log-house, and endeavor to eat the clay with which the spaces between the logs were filled; that is, when the ground was covered with snow. And as we all know that they are entirely governed by instinct, and seldom if ever, eat that which it is not beneficial for them to eat; therefore, when I saw my cattle endeavor to eat the clay from between the logs of the old house, I determined to try the experiment, whether they would take it from my hand, when in their yard; accordingly I took a peck measure, and filled it with the clay, and then offered it to them in pieces of a proper size, and found that they ate it greedily. They were afterwards fed with clay twice or three times a week, until the snow disappeared, and never were cattle healthier or in better condition when the spring opened.

Since then, my horses, cattle, calves and sheep, when the snow has prevented them from obtaining earth or clay for themselves, have been supplied with it as often as three times a week, the sheep and calves from their trough, and horses from the manger. I have fed it to calves in the spring and summer, when they refused to suck, or drink milk from the pail; that is, after they had learned to drink, and it has never failed in restoring to them their appetite, correcting all acidities of the stomach, as magnesia does in children, and stopping all scourings. And as to calves I never have lost one in winter, and of sheep not two in a hundred since I commenced feeding clay to them, as I have above stated. Out of an hundred and forty, which I have wintered the past winter, I have not lost one, and the most of them are good mutton.

I will notice one more instance of its effect upon sheep. My neighbor, Dr. Benjamin Butler, one of our most extensive wool growers, and best practical farmers, had a year ago this winter, a number of his sheep taken with the scours, and before he was informed of it some of them had died; he requested his superintendent to have some clay dug up and thawed, and then placed upon boards under their sheds; it was done, and Mr. Butler did not loose another sheep.

I am perfectly satisfied that it is as necessary that cattle and horses should have clay given to them in winter, when the fields are covered with snow, as it is that they should have salt in summer, and as to sheep and calves I would rather that mine should do without salt than without clay.

And do we not frequently hear farmers observe, "this is a hard winter for sheep;" ask the question why, and they answer, because, they cannot come to the ground, or that sheep want to come to the ground; they all seem to have observed that it is necessary that sheep should come to the ground; but it does appear not to have occurred to them, that when they cannot, then it were their duty to bring ground to their sheep.

The severity of the past winter, and the destruction of almost entire flocks of sheep, and numberless calves, even amongst those who had a plentiful supply of fodder, may possibly induce some, during another winter, to provide their cattle, horses and sheep with what the animal's almost unerring instinct points out to him their nature and constitution require. For the general management of my sheep in other respects, I refer you to the 1st volume of the American Farmer, pages 332 and 342, under the head of Five Minutes Reflection on Sheep, which it might be well to republish in the Cutivator.

I have endeavored for years, by persuasion and entreaty, to prevail upon most of, if not all, the farmers of my acquaintance, to make use of clay in winter for their cattle and sheep; but alas, such is the inveteracy of habit, that I found my advice almost invariably unheeded; and was it not, perhaps, because daddy never gave any clay to his cattle, and as he was a perfect master of the art of agriculture, consequently there could not possibly be any benefit resulting from the use of it?

Yours truly, G. VANDERLYN.

Albany, April, 1836.

Dear Sir—It is well known that considerable quantities of apples are shipped every year for Europe, from various ports in the United States, but chiefly from New-York,—and that probably not one-fourth part arrives in good condition. Indeed, the chance of their being worth any thing at all on their arrival is so small, that the freight is always demanded in New-York on the shipment of them. The incessant motion of a vessel at sea soon bruises them, a bruised or decayed apple gives way continually, and the remainder are tumbled up and down in the barrel, with more or less violence, for three weeks or a month. Various ways have been devised for packing them so as to keep safely. I sent in December last two barrels to London, which arrived in perfect order, at least my friend writes we word that not three in a barrel were injured. I procured a sufficient quantity of that black spongy earth called peat, such as is to be found in any swamp. It is merely dead vegetable matter, is soft, and not liable to fermentation. After it was tolerably dry, I rubbed it fine by hand, and covered the bottom of the barrel with it two or three inches thick, then laid the apples carefully upon it, so as not to touch each other, covered them with peat, and shook the cask till it settled well down, and so on, till the cask was as full as it could be headed up. Perhaps this mode may be thought too much trouble by many; but as peat is cheap, abundant and light, it may be better to ship a less quantity more securely, than a large one in the common rough way, as many more would get to their destination, which after all is the main thing. I make no doubt that five hundred barrels might be sent without losing five barrels, if sound apples were carefully packed. Peat too is an excellent substance in which to pack plants, roots, cuttings, &c. for sending to any distance.

Yours truly, S. HAWES.

Mr. Buel—Sir—I have read the Cultivator the year past, and have commenced for the year to come. As I farm it for a living I have been in the practice of raising some sheep. I purchased a pair of merinos of Colonel Humphrey, of Connecticut, and brought them into Milton—the first that was in the county of Saratoga. I have kept merino sheep ever since, and I find they are subject to diseases more than our old sort of sheep. I have read of the foot ail, and how to cure it, but not the first cause of the complaint. I will give my opinion. All sheep have an issue in the foot, between the hoofs, and when I see one of my sheep limp, I catch it, part the hoofs, and on the top of the foot, between the claws, there is some coarse hairs in the hole of the issue; pull them out, and put one finger under the foot, one on the top, and press them down gently, and there will come out a thick gummy matter, which stops the issue from discharging; this done the sheep is well in a few days.

If you think this worth putting in your paper, it is at your service. Please to put in better form, for I am better at the plough than with the pen. With respect, yours,

Milton, April 20, 1836. SILAS ADAMS.

Judge Buel—In the last number of the Cultivator, your correspondent, Mr. F., is out again, upon "old fashioned merinos." A word in reply shall suffice. The term, I dare say, was first used to designate a race of sheep, formerly well known to all our farmers, but who knew or cared little about the original flocks from which they came, or the names which they bore.

It is true, the Merinos were at first badly received in this country, but it did not arise from a want of constitution in the animals, for it is well known, that they had in point of hardiness and endurance of cold, greatly the advantage of our native sheep. The prejudices doubtless arose from their diminutive, and ill-formed proportions, as well as the very sickly condition in which they came to us, in consequence of large numbers being crowded into a vessel, and destitute of ordinary care and conveniences. Hundreds died on the voyage, and many more soon after they landed. Not so with the Saxons, for they arrived in capital condition, except they were affected with foot rot, which is always attendant on long journeys and close confinement. It is bad authority and worse taste to quote the opinion of the "butcher," as adverse to the Spanish Merinos, for that part of the subject is already well understood by all wool growers. The early importations of Spanish sheep were sufficiently "distinctive" for my present purpose, which has been to prove that they were infinitely better suited to our climate, and their wool to the wants of our country, than any sheep ever imported.

I care little about a long list of Spanish names, of no sort of consequence to the farmers of this country. We want the *animal*, and the most profitable animal, and leave to Spaniards and others their prejudices, whims and fancies, with the names with which they may choose to dignify them. I have been pleased to read the remarks of Mr. F. He adopts the ideas of Livingston, and other early writers on sheep. They were very well in their day, and in many respects are correct even now. The same remark will apply to the extracts from the "Library of Useful Knowledge," whose numbers furnish much valuable information in relation to sheep. The "Farmer's Series" is now being published in numbers. It is a cheap and valuable publication, and should be in the possession of every wool grower.

Mr. F. is doubtless aware that the Rambouilet flock of France, to which he refers, is still a *Merino* flock, and retains all its Merino characteristics. He is also well pleased that one individual in this country *"has kept Saxony, Escurial, Paular, &c."* separate and distinct. It will doubtless be a great convenience to buyers to find on the same farm the different breeds of fine wool sheep, and there too "all entirely distinct." However, in such a case, I should prefer to look and judge for myself, for bucks sometimes leap the fences, or the gates get open. In making a purchase, I shall always choose to examine into the health of the sheep, to see them free from *foot rot* and *scab*, for I would make him liable, who would sell me a sheep that would bring contagion into my flock.

An attempt has been made to prove that the defects of the Saxons did not attach to the "*Electoral*" Saxons, and that they were a race of sheep different in constitution and quality of wool. Why sir, let me tell you that there should be no magic in the name "Electoral," for in Saxony there are many private flocks quite as good as the Electoral. It is true, that the "Electoral" sheep are generally better bred, but that they have better constitutions is absurd, and is a pretence which I never heard set up in any other country but our own. The climate of corresponding latitudes of Europe and American is widely different, and it is not surprising that animals suited to their climate, should be totally unable to withstand ours. I admire very much the beautiful appearance of Saxony wool, and I do not deny, that they can be kept alive in this country, by proper care and nursing. For a gentleman farmer, or for a man retiring from a professional life to a farm, and not depending on its profit for an income, the Saxony sheep are very well suited. But to a working-man, dependant on the products and profits of a farm for support, I say let him in the first place, be sure that he selects such breeds of animals as will endure the climate. Closely connected with this subject, let me remark, that ninety per cent of the wool manufactured in the United States is of a middle quality, and why should we aim to produce an article which is above the market, or at most but little wanted. At this very time, when the medium quality of wool is nearly all manufactured, and manufacturers have been found to use the inferior foreign wool, yet, through the whole year, Saxony wool has had a dull sale, and the supply greater than the demand. This is a fact beyond dispute.

But why do I trouble you? farmers will soon learn what is for their interest. Indeed, their own experience for the last winter, will tell them plainly, whether the Saxons can endure our climate as well as the old Spanish Merinos. As a large majority of your subscribers are interested in wool growing, I hope you will not discourage any remarks on the subject.

In may last letter a few mistakes were made, but not of such consequence as now to require to be corrected.

Very respectfully yours,

May 9th, 1836. A. B.

SHEEP HUSBANDRY.

THE SHEEP.—*(Continued from page 189, Vol. 2.)*

THE VALUE OF THE PELT.

The inhabitants of the Ukraine and Podoli, as soon as the lamb is dropped (which comes into the world with a pretty wavy skin, even without the assistance of art), sew it up in a sort of coarse linen shirt, so as to keep up a constant gentle pressure on the wool, pouring warm water over it every day, in order to make it soft and sleek. They slacken the bandage a little from time to time, as the animal increases in size, but still keep it tight enough to lay the wool in beautiful glossy ringlets, and thereby produce a delicate skin in great request in other countries for lining clothes and morning gowns. By this process the fine soft wool of the young lamb takes a beautiful arrangement; and the animal is killed younger or older, according to the material intended to be produced, whether with a short glossy nap, like satin, fit only for delicate linings, or a warm thick fur for winter clothing.

The Boucharian Tartars carry this refinement to a greater extent. They will not kill the female, for they look to her for the continuance of their flocks; but a great number of the male lambs are destroyed as soon as they are dropped. The wavy curls of these fleeces are sometimes remarkably beautiful, the richest damask scarcely exceeding them. They are of a black, blue, or silver-grey colour; the first of which, when thoroughly glossy, are most highly esteemed.

In some districts these fine and valuable furs—they partake more of the nature and appearance of fur than of wool—are produced by other means: the mother is slaughtered a little before her time of pregnancy would have expired, and the little one taken from the womb and destroyed while the carcase is still reeking. The short glossy fur, lying close to the pelt, is said to be more beautiful than any that could have been obtained from the same animal after birth.

Bell, in his Travels in Russia, in 1750, gives a similar account: "At Astrachan they have great quantities of lamb-skins, grey and black, and some waved, others curled, all natural and very pretty, having a fine gloss, particularly the waved, which at a distance appear like the richest watered tabby. They are much esteemed, and are extensively used for the lining of coats and the turning up of caps in Russia and Persia, and other parts. The best of these are brought from Boucharia, Chiva, and the countries adjacent, and are taken out of the ewe's belly after she has been killed, or the lamb is killed directly after it is lambed; for such a skin is equal in value to the sheep. The Kalmucks and other Tartars, who inhabit the desert in the neighborhood of Astrachan, have also lamb-skins, which are applied to the same purposes; but the wool of these being rougher and more hairy, they are far inferior to those of Boucharia or Chiva, both in gloss and beauty, as also in dressing, and consequently in value; I have known one single lamb-skin of Boucharia sold for five or six shillings sterling, when one of these would not yield two shillings."

Professor M'Culloch says, that the value of lamb-skins varies according to the fineness, brilliancy, and color of the wool. Black lamb-skins are more generally esteemed than those of any other colour. Some English lamb-skins, perfectly fine and white, and taken from the Anglo-Merino breed, are in considerable estimation. The greater part, however, come from abroad, and the importation of them is immense, having amounted on an average of 1831 and 1832, to 2,365,635, four-fifths of which were supplied by Italy.—They are mostly used in the manufacture of gloves, 120 skins producing, on the average, 18 dozen pairs of gloves.

THE YOLK.

The filament of the wool has scarcely pushed itself through the pore of the skin, than it has to penetrate through another and singular substance, which, from its adhesiveness and colour, is called the YOLK. It is found in greatest quantity about the breast and shoulders—the very parts that produce the best, and healthiest, and most abundant wool—and in proportion as it extends to any considerable degree over other parts the wool is then improved. It differs in quantity in different breeds: it is very abundant on the merinos; it is sufficiently plentiful on most of the southern breeds, either to assist in the production of the wool, or to defend the sheep from the inclemency of the weather; but in the northern districts, where the cold is more intense, and the yolk of wool is deficient, a substitute for it is sought by smearing the sheep with a mixture of tar and oil or butter. Where there is a deficiency of yolk, the fibre of the wool is dry, and harsh, and weak, and the whole fleece becomes thin and hairy: where the natural quantity of it is found, the wool is soft, and oily, and plentiful, and strong. Precisely such, in a less degree, is the effect of the salving in suppling, and strengthening, and increasing the quantity of the wool.

It is not the inspissated perspiration of the animal: it is not composed of matter that has been accidentally picked up and that has lodged in the wool; but it is a peculiar secretion from the glands of the skin, destined to be one of the agents in the nourishment of the wool, and, at the same time, by its adhesiveness, to mat the wool together, and form a secure defence from the wet and the cold.

The medium quantity of yolk on a Hereford, Shropshire, or Sussex sheep, is about half the fleece; and this is the customary allowance to the wool-buyer, if the fleece has been sold without washing.

A celebrated French chemist, M. Vauquelin, has made various experiments on the composition of the yolk of wool; the result is as follows: It is composed, 1st, of a soapy matter with a basis of potash, which formed the greater part of it. 2nd. A small quantity of carbonate of potash. 3d. A perceptible quantity of acetate of potash. 4th. Lime whose state of combination he was unacquainted with. 5th. An atom of muriate of potash. 6th. An animal oil, to which he attributed the peculiar odour of the yolk; and, in conclusion, he was of opinion that all these materials were essential to the yolk, and not found in it by accident, for he analysed the yolk in a great number of samples, as well Spanish as French, and found them in all.

The yolk being a true soap, soluble in water, it is easy to account for the comparative ease with which the sheep that have the natural proportion of it are washed in a running stream. There is, however, a small quantity of fatty matter in the fleece, which is not in combination with the alkali, and which, remaining attached to the wool, keeps it a little glutinous notwithstading the most careful washing.

This subject may be summed up in the comprehensive language of Mr. Luccock. "He," the northern sheep-master, after having applied his salving, "finds this dirty coat as indispensably necessary to the good qualities of the fleece as it is to the health of the animal; without it, the wool becomes hairy, thin, and light; with it, the fleece is full, soft, and rich, possesses a sufficient quantity of healthy yellow yolk, and the qualities and condition of the wool are most wonderfully improved. From these circumstances we conclude that the yolk is not only necessary to the production of a valuable fleece, but is the very pabulum of wool. The manner in which the yolk acts upon the wool is not accurately known. Some have considered it as the superabundance of that substance which forms the filament, and which, by some unknown process, while the pile is growing, is consolidated into a transparent mass; while others conclude, perhaps more reasonably, that it is a peculiar secretion which exudes through the skin, and, by intermingling with the pile, renders it soft, pliable, and healthy, affecting it much in the same way as oil does a thong of leather when kept immersed in it and perfectly saturated. In general this substance has been noticed without any particular reference to the breed of the animal, or the qualities of the fleece which it bears; sometimes as perfectly disregarded as the sand and the hay-seed which are accidentally mingled with the pile. Yet the disposition to produce this valuable animal soap is certainly as important as some other characteristics of the sheep, and ought not to be overlooked when we describe their different varieties or select them for our farms.—*Library of Useful Knowledge, Farmers' Series.*

EXTRACTS.

CHEMISTRY FOR FARMERS.

The excellent essay on lime, by M. Puvis, which we are in the course of publishing in the Cultivator, has been re-published in a pamphlet form, with an introduction by Professor Renwick, of Columbia College, full of instruction to the farmer. The public, we understand, are principally indebted to James Wadsworth, Esq., for this publication. The introduction of Professor Renwick is explanatory of many of the principles of agricultural chemistry, and as it will be likely to aid the reader in understanding more distinctly the object and effect of liming lands, we suspend, for this number, the continuation of M. Puvis' essay, and insert the introduction entire. We heartily rejoice, that men of science are at last applying their labors to agriculture—the great business of our country, and of the civilized world; and in behalf of our brethren of the plough, we tender to the gentlemen who have interested themselves in the publication of this valuable pamphlet, our grateful acknowledgements.—*Conductor.*

The chemical facts and principles which are applicable to agriculture, are neither numerous nor complex. They are, however, to be found only in works on general chemistry, in which they are intimately associated with laws and phenomena of a more abstruse description, and in connection with which they constitute a science of which the most learned are still students, and to attain which in its existing form may require years of close and attentive study.—The language, too, of chemistry, which, to those who study it in a regular course, serves as an artificial memory, and single words of which call up long trains of thought and experiment, presents to the uninitiated all the difficulties of a foreign tongue.

Yet it cannot be doubted, that the practical farmer may derive important benefit from acquiring so much of this language as will enable him to understand the chemical explanation of the numerous changes which are continually taking place in the natural actions which it is his high privilege to call into his service, to direct in part, and modify in degree. So also are there certain chemical elements and compounds, with the properties of which he ought to be acquainted if he wish to be able to direct his practical skill with more effect, even in circumstances familiar to him, but which may be absolutely necessary, or will at any rate save waste of labor and loss of time, when the knowledge acquired by practice in one place is to be employed in a new situation, and under a change of circumstances.

It is the object of this introduction to exhibit, in such form as may be intelligible to those who have not made general chemistry an object of study, a concise view of such of the laws and facts of that science, as are absolutely necessary for the agriculturist who may wish to improve his practice, and which are more particularly required by those who wish to avail themselves of the knowledge contained in the subjoined essay. To do this has been found no easy task. It would be in itself difficult, but to the author of this introduction has been more particularly so, as he has for years been in the habit of imparting instruction to those whose habits of life and thoughts are as remote as possible from those of the practical farmer; persons to whom the peculiar language of chemistry is an aid instead of an impediment; and who, with ample time at their command, have an opportunity of pursuing the study of the science step by step. Fully aware of these difficulties, both general and peculiar, this attempt would not have been made, and certainly not persisted in, had it not have been for the instances of an intelligent, scientific, and successful farmer, who has urged the completion of the task as an object likely to be beneficial to those, who, with perhaps equal zeal and native powers of mind, have not enjoyed, like himself, the advantages of a scientific education.

The atmosphere which surrounds our earth is the first object to which our attention should be directed. This is the vehicle of the moisture, which, whether it fall in the form of rain or dew, run in streams or issue from springs, is absolutely essential to the success of the farmer's labor. It is also, as we shall presently see, important to him on other accounts.

The greater part of the atmosphere is made up of a mixture of substances, each of which has the same mechanical properties as the whole mass. These air-like substances are known to chemists by the name of *Gases.*

Of these gases, two make up by far the greater portion of atmospheric air, and exist in it in the proportion of about four to one.—That which is the largest in quantity and makes up nearly 4-5ths of the whole atmosphere, is called, in the Essay of M. Puvis, by the name of Azot, but is more usually known in English by the name of Nitrogen.

This substance, although in the largest proportion, is the least important of the gases in its chemical effects. It does not aid in supporting the life of animals, nor in maintaining the burning *(combustion)* of inflammable bodies.

The part of the atmosphere which is absolutely necessary for these purposes, is called by the name of *oxygen*, and nearly makes up the remaining fifth part of atmospheric air. In its support of life it always, and in maintaining combustion often, unites with a chemical element, which is called *carbon.* This is familiarly known as forming the principal part of charcoal. In its union with carbon, oxygen forms a peculiar gas known by the name of carbonic acid.

Carbonic acid is always found in small quantities in the atmosphere, to which it is furnished by the breath of animals and the fumes of burning bodies. It is, when in considerable quantities, fatal to the life of animals, but is prevented from accumulating to an injurious extent in consequence of its being taken up by water; it is therefore dissolved, in proportions about equal to those in which it is formed, by rivers, lakes, the ocean, and the moisture of the soil.

Water exists in the atmosphere in the form of vapour. The great source of this vapour is the extended surface of the ocean; and it is governed by a mechanical law, by which it is continually tending to distribute itself uniformly over the whole surface of the earth. It may thus exist in as large quantities over the surface of the dryest land as over that of the ocean itself. The tendency to equal distribution is continually counteracted by the changes in the sensible heat *(temperature)* of the atmosphere, and of the surface of the earth, which follow the alternations of day and night, and the vicissitudes of the seasons. By these alternations and changes, the vapour is caused to fall *(precipitated)* in the form of rain, snow, hail, dew, or white frost, according to circumstances. As such changes of temperature are more frequent on the land than on the ocean, the water which falls on the former in either of these forms is greater in quantity than that which falls on equal surfaces of the latter. Thus, by a wise and benevolent provision of providence, the water of the ocean is continually furnishing vapour, which is precipitated on the land for the support of vegetation and the supply of springs, and whose excess is poured back into the ocean in streams and rivers.

Water has been found by chemists to be a compound substance, made up of two elements. One of these, which forms 8-9ths of its weight, is the gas already mentioned under the name of oxygen; the other, a peculiar gas, known by the name of *hydrogen.*

Hydrogen, when free, is the lightest of all known bodies, rising and floating in atmospheric air; it not only combines with oxygen, to form water, but with carbon to form a great variety of compounds—gaseous, liquid, viscid, and solid. It also combines with nitrogen, and forms a gas known by the name of ammonia, which is well known by the peculiar smell it gives to spirits of hartshorn *(liquid ammonia.)*

Hydrogen also combines with sulphur, forming a gas known by the name of sulphuretted hydrogen; this exists in the atmosphere, but in such small quantities as only to be detected by the nicest chemical tests. It combines in like manner with phosphorus, forming phosphuretted hydrogen gas, whose presence in the air is occasionally perceptible.

Oxygen, as we have seen, unites with carbon, to form a gas which we have called carbonic acid.

This receives the latter part of its name from its similarity in properties to an extensive class of compound bodies, known by the name of *the acids.* The greater part of these, like carbonic acid, are combinations of inflammable bodies with oxygen. The most important of these in reference to our present object, are the sulphuric and phosphoric acids; named from the two substances (sulphur and phosphorus) which are their bases. Muriatic acid may also be mentioned here, although its composition is of a different character. Oxygen unites with other bodies to form a class of compounds known under the name of oxides.

The acids unite with earths, alkalis, and metallic oxides, to form a class of compounds known under the general name of salts.—These are named from the two substances which enter into their composition: thus, the salt formed of sulphuric acid and the earth lime, is called sulphate of lime. The substances which unite with acids to form salts, are called the *bases* of the respective salts.

Of these bases, the alkalis and earths are most important. Of the alkalis, it is only necessary to know the names of two, namely *potassa* and *soda,* and to be aware that their distinctive properties, are: to possess an acrid taste, a caustic operation, to render oils capable of mixing with water, and to neutralize the properties of acids.

The earth which chemists call by the name of silex or *silica,* is found almost pure in flint and rock crystal; it is also almost pure in sharp colourless sands, and is by far the larger part of sands of every description. So far as the farmer need know its properties: it is hard, rough to the touch, has no attraction for water, which it permits to filter through, or evaporate from it, with the greatest ease. It is capable of uniting with the other earths in compounds which are called silicates, and is the only earth which enters into the formation of soils uncombined with the others or with other elements.

The earth which chemists call by the name of *alumina,* is so named because it is obtained by them in a pure form from the well known salt called alum, of which it is the basis. Its most marked characteristic is plasticity: that is to say, it may be formed into a paste with water, will then easily receive any form which may be given it, and retain that form unaltered, even by violent heat. It never exists in soils unmixed, but in intimate association, or more probably chemical combination with silica, it is the well-known substance called clay, or argillaceous earth. White clays are this combination nearly pure, and coloured clays often contain it with no other addition than metallic colouring matter. Clay retains the plastic property of alumina; it therefore causes soils to be retentive of moisture; and, when they dry, makes them form tough clods or crusts, similar in character to sun-dried brick.

Soils which contain clay are often also mixed with sand, or with an excess of silica in grains, which does not enter into the composition of the clay. Such a soil is less liable to form a tough crust than a pure clay, but it will require a very large proportion of sand to destroy this property altogether.

Clay mixed with sandy soils renders them more retentive of moisture. Sand and clay have therefore been used as manures for each other; but it may reasonably be doubted whether all the advantage that has been anticipated by some from this process, can be realized, as such a mixture will be merely mechanical.

Loamy soils are generally said to be mixtures of sand and clay; they undoubtedly usually contain both these earths, and even sometimes a large excess of sand. But we shall give reasons for believing that loams owe their peculiar value to a combination of clay with another substance, by which a change is produced in its chemical characters.

Lime is familiarly known to farmers by the same name that is generally used by chemists. It is obtained by the aid of heat from rocks which go by the name of limestones. These are combinations of lime with carbonic acid, which is fixed in them by chemical attraction, but which, when driven off by heat, takes the same form as the air of the atmosphere, or becomes a gas. This gas from this circumstance has been called *fixed air,* by which name it is often known when causing the sparkling and froth of cider and beer.—The principal part of lime-stone is therefore called by chemists *carbonate of lime.* Carbonate of lime is also found in shells, both those of living animals and those which exist in the ground in a fossil state. In the former it is mixed with animal matter, which is more or less separated from the latter according to the time which has elapsed since the death of the shell fish.

Marl, in the sense in which the term is used by chemists, is a mixture of clay with carbonate of lime. The English writers on agriculture have not observed this distinction, and the term is sometimes applied by them to a decomposed chalk, which may contain little or no clay; and sometimes to clay which contains no carbonate of lime. In fact, the name is frequently applied by them to any earthy matter found below the vegetable soil, which is capable of increasing its fertility. From this misapprehension, the substances which go by the name of marl in New-Jersey, Maryland, and Virginia, do not correspond with the chemical definition, but are generally beds of fossil shells mixed in various proportions with earthy and saline matters of various kinds.

Lime is a substance very different in its characters from the two earths of which we have previously spoken. When prepared by heat from any of the original forms of its carbonate, it retains their shape unaltered, but may have its colour changed, and always loses considerable in weight. It is now acrid, caustic, and corrosive, and has some properties in common with potash, which are therefore alkaline. Of these the most important is, that it unites with acids to form compounds included in the general class of salts. Of the salts of lime which are important to the farmer, the three principal are: the *carbonate,* which, as we have stated, is found in limestone, chalk, shells, and marl; the *sulphate,* in which lime is combined with sulphuric acid, and which in combination with water is the substance so well known to our farmers under the name of plaster of Paris, or less familiarly by that of gypsum; the *phosphate,* which constitutes a large part of the bones of animals.

Lime, when exposed to the air, attracts carbonic acid, which is always to be found in the atmosphere; it thus passes back to the state of carbonate, but in so doing gradually falls to powder, and is then said to be *air-slaked.* If slaked with water, it also falls to a powder, which still retains the caustic character of the burnt lime; but this powder, when exposed to the air, unites with carbonic acid more rapidly than when in mass.

Lime, in its caustic state, has the property of rapidly decomposing vegetable and animal substances, thus hastening the natural processes by which they are finally destroyed; or, to speak more properly, have their elements resolved into new combinations.—The offensive and unwholesome gases, which are given out by this composition, are absorbed by the lime, and prevented from mixing with the air. The same property is possessed in a less degree by the carbonate of lime, and probably by its other compounds; but in order that either this earth or its compounds shall manifest this property, they must be in small fragments, or, which is better, in fine powder.

Wet sand and plastic clay, and those soils to which they give their characters, also possess the property of absorbing gases; but they have this in a very inferior degree to lime and its compounds. As the gases generated by the decomposition of vegetable and animal substances form a large part of the necessary food of plants, it is obvious that a soil which contains the carbonate of lime, may retain and store them up for use, while they will be lost in soils of a different character.

Carbonate of lime may also be made a most important article in the preservation of the most valuable parts of putrescent manures, until they can be applied to the soil. In this way marl is applied to a great extent in China; the night soil of their numerous population is there formed into cakes like bricks, with marl, and thus loses its offensive smell; but when these are applied as manure to the land, they give out the gases again as they are required for the nourishment of plants. So also in Norfolk, the site for dunghills is prepared by a layer of marl, which is incorporated with the manure from time to time, and retains the gases which would otherwise be lost.

Lime may therefore be applied in its caustic form in some cases in agriculture, for it will hasten the decomposition of animal and vegetable matters which might otherwise be inert; it will also neutralize acids, which experienced farmers well know to exist in many soils, which they in consequence call sour. But the latter purpose will be answered as well by the carbonate of lime, which may be applied as it exists in marl or shells, or as it may be prepared by grinding lime-stone. Caustic lime is also dangerous in its application, for it will corrode and destroy living vegetables, and hasten the decomposition of the vegetable matter of the soil to such a degree as to injure its fertility. Except upon turf-bogs, and land loaded with timber not wholly decomposed, quick or caustic lime ought not to be used; but to burn lime, and then by slaking to reduce it to the form of fine powder, which is speedily carbonated by exposure to the air, is a more ready, and generally a cheaper mode of obtaining the carbonate in a convenient form, than to grind limestone to powder in mills. Yet for many of the most valuable uses of lime in agriculture, the latter method, if as cheap, would answer as well.

Lime slowly combines with the earth silica, and produces a compound very different in character from either. It is this, to cite a fact in proof of our statement, which gives the hardness and solidity to ancient mortar. The carbonate of lime will serve to form this compound; and thus, when it has had time to act upon sand, it renders a silicious soil more retentive of moisture; while, if applied to clay, by combining with its silicious matter, it renders it more friable; and it is to the formation of this compound, by slow degrees, that we are inclined to ascribe the valuable mechanical properties of loamy soils, and the gradual amelioration produced by the use of lime, marl, and shells as a manure.

Besides silica, alumina, and lime, an earth called magnesia is likewise found in some soils. It is also, in the form of carbonate, a frequent constituent of limestones. This earth has many properties in common with lime; like lime it is capable of neutralizing acids; and when deprived of carbonic acid by heat, corrodes vegetable substances. It probably also hastens putrefaction, and both it and its carbonate are capable of absorbing the gases let loose in that natural process. It is, however, of little interest in agriculture, except as a part of some of the limestones which are used as manure. These, if applied in large quantities, are sometimes very injurious to vegetation; the reason of this is, that magnesia does not repass to the state of carbonate as rapidly as lime, and therefore contains its corrosive quality long after the lime has again become mild by its union with carbonic acid. In less quantities, however, the magnesian limestones may serve as a manure, but their application requires great caution, particularly when the quantity of magnesia amounts to 25 per cent.

All of the simple substances we have mentioned, except perhaps the last, either separate or in various states of combination, exist in plants. The manner and character of the combination is influenced by the vital action of the plant, which causes them to form compounds, often in direct opposition to the manner in which the ordinary laws of chemistry would direct. It thus happens that so soon as the plant ceases to live, these chemical laws, being no longer impeded, begin to exert their influence; and if it be in such a state as will admit of the several elements acting readily upon each other, a decomposition, more or less rapid, of the vegetable structure ensues. It is a law of chemistry, that its action is always aided by the bodies being in a fluid state, and the action is often impossible when the bodies are perfectly free from moisture. Hence the direct chemical action, and consequent decomposition, takes place with greater certainty and more rapidity in green juicy and succulent vegetables, than upon those which have been deprived of moisture either naturally or artificially. Thus grass, if heaped up in a recent state, decomposes, and if but partially dried, is heated, and may even take fire, by the chemical action of its elements; while, if dried by exposure to the sun and air, and then laid up in a dry place in the form of hay, it is almost indestructible. A moderate degree of heat and access to air are also necessary to promote the chemical action by which decomposition is effected. This decomposition is often attended with motion among the parts; and always, if the mass has a liquid form, as in the expressed juice of vegetables, or in the steeps employed by distillers and brewers; it goes in general terms by the name of fermentation. When the vegetable matter abounds in starch, the first change is the conversion of this principle into sugar. Sugar, if thus formed, is next converted into alcohol, as it is, if it previously existed in the plant.—The presence of alcohol gives the liquid in which it exists the character of vinous liquors, and if these are permitted to remain in a turbid state, a farther fermentation converts them into vinegar; and finally vinegar is farther decomposed, and the vegetable matter, giving out an offensive smell, is said to putrify. If the substance be not an an expressed juice or liquid steep, these several stages of fermentation ensue with rapidity, may be going on at the same time, and are sometimes so speedy in their course that no other action but the putrefactive fermentation can be detected. Animal bodies are subject to the same laws, and go through the same stages of fermentation, but the rapidity which they run into putrefaction is even greater; still there are some cases, as in that of milk, where the vinous stage can be occasionally, and the acetic distinctly, observed. Thus, a vinous liquor is prepared in some countries from milk, and the sour taste which appears in it when kept, arises from the presence of vinegar.

In the several stages of fermentation, parts of the vegetable assume the form of gas or vapour, and are given out to the air. The gases which have been detected, are carbonic acid, a gaseous compound of carbon and hydrogen, and in some instances ammonia.—The vapour is that of water, which escapes in greater quantities than it would under ordinary circumstances, in consequence of the heat with which the process is attended. If exposed to rain, soluble salts, with earthy and alkaline bases, are washed from the mass. Finally, a mass of earthy consistence alone remains, which, on examination is found to be made up of earths, insoluable salts, and carbon, being, in fact, identical with vegetable mould.

We may hence infer that the following elements exist in vegetable bodies:

1. Oxygen, developed in the carbonic acid and water.
2. Hydrogen is in the water and carburets of hydrogen.
3. Carbon.
4. Earths.
5. Alkalis.
6. Nitrogen, occasionally developed in the form of ammonia.
7. Acids, remaining in the insoluble, or washed away in the soluble salts.

The chemical examination of vegetable bodies ought of course lead to similar results. This examination has been conducted in three different ways.

1. With the view of discovering the nature of the compounds, called vegetable principles, which exist ready formed in plants.

2. For the purpose of discovering the chemical elements contained in these principles.

3. By the destructive action of heat, under which some of the elements are wholly separated, and others enter into new combinations.

In the first of these methods there have been detected:

I. Certain peculiar acids, of which we may cite

(1) Acetic acid, which, mixed with water, forms common vinegar.
(2) Citric acid, which is found in the lemon and orange.
(3) Malic acid, which exists in the apple.
(4) Tartaric acid, in the juice of the grape.
(5) Oxalic acid, in the wild sorrel.

II. Certain substances of alkaline character, found principally in medicinal plants, to which they give their peculiar virtues.

III. Gum, resin, oils, sugar, starch, and two substances approaching to animal matter in their characters, namely, albumen and gluten; the former of these has a resemblance to the white of eggs, the latter to animal jelly or glue.

Many other principles are separated by the same method in different plants, but need not be enumerated by us.

The basis of this method consits in acting upon vegetables by water, ether, or rectified spirits (alcohol), and the principles above enumerated are either simply, or in the state of combination in which they exist in plants, soluble in at least one of the liquids we have named.

In all cases some insoluble matter is left, and this is known by the name of the woody fibre.

When these principles are treated by the second method, oxygen, hydrogen, and carbon, are the uniform results, but in different proportions in the different cases; nitrogen is also detected in some of them, as, for instance, in the alkaline principles and in gluten.—This method does not appear to be adequate to determine whether earths and alkalis are, or are not, parts of these vegetable principles. From the very remarkable fact, that some of those substances, which are very dissimilar to each other, yield exactly the same proportions of oxygen, hydrogen, and carbon, we may fairly conclude by chemical analogy, that one or the other, or perhaps both, contain some substances which have escaped the analysis. As an instance we may cite starch and sugar, whose characters are so dissimilar that no danger can exist of mistaking the one for the other; and yet their analysis by the second method gives identical results.

The third method may be understood by comparing it with the process used in making charcoal. If this be so far altered that the heat employed shall not arise from the combustion of a part of the substance to be examined, but from one merely used as fuel, and if the matters which escape in smoke are condensed and collected, we shall have that employed occasionally on a large scale by operative chemists. In this way charcoal will be, as usual, obtained in the solid form. The condensible products will be water, tar, turpentine, or resin; and the acid which gives that character to vinegar, but which in the present case, is union with the tar and water, is called pyrolignous acid.

If the charcoal be burnt in a current of air, all its carbon is converted, by union with the oxygen of the atmosphere, into carbonic acid, leaving a residue familiarly known as ashes. The ashes are made up partly of soluble, and partly of insoluble matter. The soluble matter is separated by the familiar process of making ley, and the ley, if evaporated, leaves the solid substance so well known as potash.

Potash is principally composed of a carbonate of potassa, but contains, besides silica, rendered soluble by the alkali, sulphate and muriate of potassa, and a peculiar acid known by the name of ulmic, which is a compound of carbon, hydrogen, and oxygen. The insoluble part is made up of carbonate of lime, sulphate and sometimes phosphate of lime, silica. The carbonate of lime has probably in no case existed in the living plant, but arises from the destruction by heat of the peculiar acid of the plant: as, for instance, the citric, the oxalic, or the tartaric; all of which are by fire converted into carbonic acid.

The quantity of ashes is extremely various, as is their proportion of the several soluble and insoluble substances, we have mentioned. Thus the ashes of the stalk of Indian corn yields 12½ per cent of alkali, while the soft woods do not furnish more than two parts in a thousand. The proportion of the sulphate and phosphate of lime in even more various. Thus, in some cases the presence of the sulphate is hardly perceptible, while of the ashes of clover it forms a large proportion of the whole weight. Phosphate of lime is found in the proportion of fifteen per cent, in the grain of wheat.

Water is not only one of the principal component parts of all plants, but is also the sole vehicle of their nutriment. At each extremity of the small fibres into which the roots of plants are divided, is an opening through which that fluid enters; and it appears that, except in the case of a plant having lost its vigor by continued drought, it is only through this channel that water can enter. By a powerful action inherent in living vegetables, water, which with all the matters it is capable of holding in solution, becomes the sap,* is raised to the highest parts of the plants, and forced to their most distant extremities. It has been ascertained that plants do not possess the power of rejecting even those substances which are most noxious to them; it is, therefore, probable that the character of the fluid admitted is the same in all the plants which grow upon the same soil. Whether it undergoes any change in the root does not appear certain, but it has recently been maintained that every description of plant throws off by the surface of its roots such matter as, if retained, would be injurious; but this opinion does not appear to be well established.

The sap, when carried up to the leaves, undergoes an important change, principally owing to the action of solar light. When exposed to light, the leaves of plants give out oxygen in considerable quantities. This proceeds from a decomposition of the water and carbonic acid, the remaining elements of which two substances and a portion of their oxygen enter into new combinations. These combinations have different characters in different vegetables, but are most familiarly known in the shape of gum and resin. These still contain the earthy and saline matter carried up by the sap, and after they are formed return downwards towards the roots. In their descent they deposite the several parts which minister to the growth of the plant—the leaves, the bark, and the woody fibre. They also appear to be forced with powerful energy into the flower and the growing fruit, and in these a still more important action is carried forward, by which the reproduction of the species is ensured.

The matters which the water that enters by the roots may hold in solution, are either derived from the atmosphere or from the soil. In its passage through the air it will carry with it a considerable proportion of carbonic acid, and all the sulphuretted hydrogen it meets with. It will also take up a small quantity of oxygen, and of carburetted hydrogen, and a still less quantity of nitrogen.—From the soil it will take all the more soluble salts, small quantities of sulphate, phosphate, and carbonate of lime, provided they be present, and silica. So also if the soil contain animal matter, or vegetables of which nitrogen forms a part, the ammonia generated by their decomposition will likewise be dissolved by the water. In like manner the carbonic acid, which has arisen from the decomposition of vegetable or animal matter, and has not yet escaped, and the soluble compounds of carbon, oxygen, and hydrogen, which are generated by the same process, will have been taken up, and carried by the water into the root of the plant. It will thus appear that, contrary to the opinion of Mr. Puvis, the atmosphere furnishes but little of the fixed elements of plants, with the exception of sulphur and carbon; and that even if the growth of plants were to depend wholly upon the carbon obtained in the form of carbonic acid from the atmosphere, their growth must be slow and feeble. It will also appear, that if lime do not exist in the soil, but few plants can find nourishment; and that for the ripening of the seeds of grain phosphorus must be furnished also. The latter substance may be absorbed in small quantities from the phosphuretted hydrogen, which is occasionally present in the atmosphere; but a more certain supply ought to be sought in putrescent manure, and particularly in that of animal origin.

The uses of lime in agriculture, as will appear from the foregoing remarks and the reasoning of the essay, are as follows:

1. When a soil contains inert animal or vegetable matter, their decomposition may be promoted, and it may be rendered fit for the food of plants, by the addition of caustic lime.

2. If the soil contain acid, that may be neutralized either by caustic or carbonated lime, and besides, the organic matter whose decomposition may have been prevented by the acid, will be permitted to putrify.

3. Soils containing too much silica, or in other words those which are sandy, are made more retentive of moisture by the addition of lime or its carbonate.

4. Clays, may be rendered less retentive of moisture, and more friable by the same means.

5. The gases which escape when vegetable or animal matter putrify, are retained in the soil by means of lime or its carbonate; and thus a given quantity of manure, or the original vegetable matter of the soil, will retain its efficacy longer. By a recent discovery, it has also been ascertained that the decomposition of plants yields

---

* See Roget's Bridgewater Treatise.

a peculiar acid, called the humic, which forms with lime a salt sparingly soluble in water. The generation of this salt also serves to render the noutriment contained in the soil more lasting.

6. Lime and its compounds are absolutely necessary, as constituent parts, to the growth of many plants. The sulphate is essential to the growth of clover, and the phosphate to that of wheat.—Hence the efficacy of plaster of Paris and crushed bones as manures.

7. If lime or its sulphate be employed as the means of raising green crops, which have but small exhausting powers, the fertility of a soil may be maintained by ploughing them in, or increased by using them to feed cattle whose manure is applied to the ground.

RULES FOR MANAGING THE MADDER CROP.

[*From Radcliff's Flanders.*]

1st. The most suitable soil, a soft sandy loam, with two or three feet depth of earth, that the roots may run down without obstruction.

2d. The land to be well ploughed and laid up in high ridges in autumn, when the madder is intended to be planted in the spring. It should be well cleansed from couch and all other weeds.

3d. In spring, plough with the deepest furrow, and let the bottom be still deepened by the spade.

4th. Plant from the middle to the latter end of April, rake the ground well and lay it up in ridges, if disposed to be wet; if not, plant in rows at 18 inches interval upon the level.

5th. Mark out the rows with a line, and dibble in the plants at 12 inches in the row; secure them well in the ground, covering as little of the green as possible.

6th. Take the slips with as much root as possible if to be carried far; take them when they begin to bud out, pack so that they be not heated, and if withered, set them upright in water previous to planting.

7th. Plant nothing in the intervals, but as the madder grows high, turn it occasionally from side to side, earthing up the roots, at the side from which the haulm is turned. The interval must be stirred at the same time, and the stragling shoots cut off; thus the roots will be strengthened to yield a double increase.

8th. Madder should remain three years (but some gather it at two years, with less profit.) The slips of the second and third years' growth are the best to plant, and should be taken in the spring, when about an inch above ground.

9th. In autumn when the haulm is withered off, earth up the rows, against the frost, and in spring hoe the intervals, and weed; attend the turning of the haulm in the summer, and dig between the rows till the season of the gathering, viz., about Michaelmas.

10th. In the third autumn, when the haulm is withered off, dig a trench along the first row of madder, three feet deep, as near to the roots as may be, to receive the earth in digging up the roots. Each digger must have three pickers to gather the roots and clear them from the earth. Lay them thin upon the ground, but free from wet; the whole ground must be dug the same depth of the first trench, that the roots may be all fairly got out; it will be the best preparative for any other crop: viz. Wheat, or garden stuff; as the same ground should not be planted again with madder in less than six years.

11th. Lying in heaps or taking rain, will discolour, therefore the sooner the roots are carried to the drying house the better.

12th. The drying house should be defended from wet on all sides, but open to a free air. The roots should be spread on hurdles, placed at a convenient distance for that purpose, one over the other. Here they must remain till they are dry enough to rub the dirt clean off, and then they are to be removed to the *cold kiln*.

13th. The kiln for hops or malt will serve for madder, with the addition of a ventilator to preserve the colour.

14th. On the first kiln they are to be dried with a gentle heat, being carefully turned, till they are dry enough to part with their husks, which are to be threshed off on a common threshing floor, clean swept, and then packed up separately. These sell at a much cheaper rate than the inside madder, under the name of *mull*. The mull is sold for about 15s. per cwt. and usually pays the expence of drying and cleaning.

15th. When the *mull* is threshed off, the roots must be dried a second time, with a hotter fire, but great care must be taken that it be not too fierce, so as to discolour the madder, for on the brightness of the colour depends the price.

16th. The last process of the madder is pounding and casking. As there are no pounding houses in England, any common stampers worked by wind, water, or cattle, may be made to answer.

It should be our care not to lead a long, but rather a good life.—*Seneca.* The true estimate is to be formed, not from the number of our years, but from our good actions. The prolongation of life depends not on man, but the glory and credit of virtuous conduct is all his own.

There is no period of life to which the exercise of the faculty of learning is limited.—*Lat.* In every stage of existence, our faculties may be improved, and our minds expanded by learning.

☞ Several communications have been unavoidably omitted. We are obliged to prepare our copy by the 20th of each month, for the next number.

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at this office, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 19th April and 21st May inclusive. Numbers under ten not noticed.

Post-Offices.			Post-Offices.			Post-Offices.		
Augusta, One.		11	Frankfort, Herk.		10	Pickaway,	Ohio,	11
Auburn, Cay.		18	Galliopolis,		10	*Plattsburgh, Clin.		15
Ashville,	N. C.	21	Geneseo, Liv.		14	*Philadelphia,	Pa.	67
Alexandriana,	N. C.	11	Gainesville,	Ala.	22	Prospect,	Va.	11
Alexandria,	D. C.	15	Geneva, Ont.		26	Penn-Yan, Yates,		11
Brookesgrove, Liv.		11	Highland,	Mich.	11	*Poughkeepsie, Dutch.		31
Brooklyn, Kings,		23	Harbor Creek,	Pa.	11	*Plymouth,	Ct.	13
Brooklin,	Ct.	17	Hammondsport, Steu.		12	Pembroke,	Mass.	12
Benton, Yates,		23	Kane,	Ill.	11	Rosendale, Uls.		11
Baltimore,	Md.	16	Kingston, Ulst.		15	Rockville,	Md.	11
*Boston,	Mass.	47	Laurens, Ots.		17	Rock Hall,	Md.	11
Barnard,	Vt.	12	Langhorns,	Va.	11	Schoharie c. h.		12
Belvidere,	N. J.	15	*Liverpool, Onon.		18	Sugar Grove,	Pa.	12
*Bennington,	Vt.	43	Loretto,	Va.	25	Shelbyville,	Tenn.	10
Coxsackie, Greene,		13	Lovingston,	Va.	11	Steubenville,	Ohio,	17
Cleucs,	Ohio,	11	Maumee,	Ohio,	14	Savage,	Md.	10
Cambridge, Wash.		12	Middlebury,	Vt.	13	St. Louis,	Mo.	13
Cranberry,	N. J.	12	Marcellus, Onon.		21	*Stone Ridge, Uls.		14
*Clyde, Wayne,		45	*Milan,	Ohio,	22	*Salisbury,	Ct.	29
Cheraw,	S. C.	14	Malone, Frank.		11	Tolland,	Ct.	20
Charleston,	N. H.	22	Manchester,	N. H.	10	Utica, Oneida,		30
Clifton Park, Sar.		13	Moorestown,	N. J.	33	Union,	N. H.	11
Carrolton,	Ill.	11	Marshall, One.		12	Vermilionville,	La.	11
*Cooperstown, Ots.		33	Maria creek,	Ind.	11	Willimansctt,	Mass.	10
Colchester,	Ct.	13	Newark Valley, Tioga,		13	Weaversville,	Pa.	11
Christianburgh,	Va.	11	Norwich,	Ct.	22	*Winchester,	Tenn.	55
*Centreville,	Md.	25	New Scotland, Alb.		11	Wilbraham,	Mass.	10
Decatur, Ots.		12	New Bedford,	Pa.	17	Waterloo,	S. C.	11
Danbury,	N. H.	10	*New-York City,		58	Wallingford,	Vt.	11
Danbury,	Ct.	19	*Owego, Tioga,		31	Williamstown, Os.		12
*Elmira, Tioga,		42	Orange c. h.	Va.	11	Wynantskill, Rens.		14
Exeter, Ots.		18	Palestine,	Ill.	11	York Inn,	Va.	11
Fairfield,	Pa.	11	Powhattan c. h.	Va.	10	Ypsilanti,	Mich.	16
*Flemington,	N. J.	19	Peekskill, West.		22			

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. May 23.	Boston. May 16.	Philadel'a. May 23.	Baltimore. April 14.
Beans white, bush........	2 25.. 2 50	2 00.. 2 50	..2 25	1 25..1 50
Beef, best. cwt............	8 00..10 50	8 00.. 8 50	6 25..6 50	8 50..8 75
Pork, per cwt..............	10 50..10 75	....	10 75	
Butter, fresh, pound, ...	22.. 24	22.. 27	17.. 19	20.. 25
Cheese, pound, ...	10.. 12	10.. 12	10.. 12	
Flour, best, bbl......	6 37.. 7 00	8 37.. 8 56	6 62	7 25..8 25
GRAIN—Wheat, bushel, ..	1 62..	....	1 40..1 45	1 38..1 45
Rye, do. ..	86.. 90	1 20.. 1 25	95..	90.. 95
Oats, do. ..	42.. 53	60.. 70	50.. 52	46..
Corn, do. ..	88.. 92	92.. 1 00	.. 90	80.. 85
SEEDS—Red Clover, lb...	6½.. 7½	12.. 13	8.. 9	8½..
Timothy, bushel,.	2 75.. 2 80	3 87	2 00..3 00	2 50..3 00
WOOL—Saxony, fleece, lb.	70.. 75	65.. 75	70.. 75	55.. 68
Merino, lb..... .	50.. 65	55.. 65	67.. 70	48.. 55
1-4 and com. lb...	45.. 52	40.. 45	45.. 60	36.. 40
Sheep, ...	....	5 00..12 00		
Cows and Calves,........	18 00..42 50	20 00..50 00		20 0..45 0

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

Vol. III. ALBANY, JULY, 1836.—(67 State-street.) No. 5.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—Judah Dobson, Philadelphia—Messrs. Hovey, Boston—George C. Thorburn and Alexander Smith, New-York, and Samuel F. Glenn, office of the National Intelligencer, Washington. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

☞ It will be seen that the Cultivator appears to-day in a new type. As a further acknowledgement for our liberal patronage, we shall continue to use some pages of small type, which enables us almost to double the quantity of matter in them.

THE HARVEST PROSPECT.

The wheat crop is represented to be unpromising, throughout the middle and northern states, and in some districts to be nearly a total failure. This arises from three causes:—The first and most prominent is the ravages of the Hessian fly. The devastations by this insect have been almost unprecedented in Virginia, Maryland, Delaware, Pennsylvania, N. Jersey, and in some of the southern districts of New-York. A correspondent in Virginia, writes—"The crop of wheat in this vicinity is literally destroyed by the fly. Many of our farmers will not attempt to save their crop at all. Out of 160 bushels sown by me, on the same quantity of acres, I think it an extravagant calculation to say I shall have 500 bushels. This land, in ordinary years, would have turned me out 1,500 bushels; and I am considered by my neighbors, as comparatively a light sufferer." A correspondent at Height's Town, N. J. says, "the wheat is entirely killed by the fly. Some of our farmers, who sowed fifty bushels seed, on good land, will not reap their seed. There is not, from strict examination, within ten miles, a single field or patch, but is prostrate. The rye is generally poor. Half crops we cannot have. I have good information from Pennsylvania, along the Delaware, and their wheat and prospects are alike blasted." The second cause of failure, is the great quantity of snow which covered the ground last winter, and which smothered and killed many of the plants. The third cause of a prospective light wheat harvest, is the prevalence of the grain-worm, the periodical depredations of which, have almost suspended the wheat culture, in many of the northern counties. Judging from the past, this insect may be expected to extend, this season, to Dutchess on the south, and to Oneida on the west.

Rye suffered from the great body of snow, on the ground in the winter. It has not, besides, tillered well;—the continued warm weather in May having caused it to send up its seed stalks, before the roots had acquired strength and vigor to multiply them.

The prospect of the corn crop is also bad. Much of the seed planted between the 15th and 25th May, in this vicinity, failed to grow. This failure is imputed to several causes, all of which may have had an influence. First—bad seed, caused by the September frosts, which arrested the growth of the grain before it had sufficiently ripened for seed, or from the grain having been heat either in the husk, or after it was cribbed. The weather last autumn was extremely unfavorable to saving the corn crop in good condition—some that was braided and hung in an airy loft, showing mould upon the butt ends of the cobs. Second—some failed from having been soaked till germination had commenced, and then planted in dry weather, and but superficially covered. The dry earth abstracted the moisture from the seed, and destroyed thereby its vegetating principle. This affords another argument for planting when the ground is fresh ploughed, and of the planter treading upon the hill, after the seed is covered—the latter causing the earth, by giving it compactness, to retain the moisture. Much corn failed to grow, in consequence of the wet cold weather, which continued from the 22d to the 29th May. This happened also to other seeds, as squashes, cucumbers, melons, Lima beans, &c. which in our garden, all rotted in the ground. In addition to all this, the grub worm has been particularly destructive to the corn, after it had surmounted the evils to which we have referred. This pest has seldom been more troublesome. In the Capitol park, an entire quarter of grass has been destroyed by them—scarcely a green blade remaining.

The truth of these remarks, as to the causes of the failure of seed-corn, was, in a manner, verified in our practice. Our seed was planted on different days, between the 12th and the 20th, it being our rule to plant immediately after the ground is ploughed. All, except the last day's planting, three days having intervened between it and the previous planting, came up well; but of the last, not one seed in forty grew, which we ascribed to the wet weather, and which was equally prejudicial to other seeds, then recently planted.

The grass, oat and barley crops, wear a promising appearance; the former seldom ever looked finer. But notwithstanding the flattering hope that these crops, and probably potatoes, will be abundant, there is great reason to apprehend a scarcity of animal food the coming year, and corresponding high prices. It is, therefore, an admonition of prudence, to those who expect to sell as well as those who expect to buy, to profit by the time that is still left, to provide for expected want. Buckwheat, and turnips, and even millet, may yet be sown, in this latitude, to make up for the deficiency in the corn and grain crops. The Swedish turnip may be sown the first week in this month, and later as we proceed south, with the prospect of a tolerable crop, and the common turnip all this month.

THE MULBERRY.

No little confusion and perplexity prevails as to the distinctive names and synonysms of the different kinds of the mulberry, and as to the relative qualities of each for producing silk. The kind specifically known as *multicaulis*, has been equally well known under the synonysm of *Chinese*. Seed has been recently vended in our market, as Chinese, at the enormous price of $5 the ounce, declared not to be the multicaulis, and believed not to be a species ever grown in China. The red of America has been confounded with the black of Europe. We hear of the Dandolo, Italian, Brussa and Constantinopolitana; and of the rough, dwarf and Pennsylvanian—the first four of which, we suspect, are identical, and the latter perhaps only varieties of the red, as neither Beck nor Eaton make mention of any American species but the red. Yet we have had forwarded to us, by a friend, three impressions of mulberry leaves, said to be indigenous, growing wild in Ulster, which seem not to belong to any of the popular species, and two of which, at least, appear to be dissimilar. Upon these, our correspondent successfully fed the silk-worm. Two of these leaves are 10½ inches long and 8 broad, the other is 8 inches long and broad; and we are told of indigenous kinds bearing both red and white fruit. If our friends will furnish us seeds of indigenous kinds, other than the red, they will confer on us a favor, and perhaps do a public benefit.

In the mean time, though we cannot promise to clear up the matter, we will endeavor to throw upon it all the light in our power.

We will, in the first place, show, from three modern authorities, all the species of the mulberry which have been described. Kenrick, an American authority, names five species, viz:—

Botanic name.	*Common name.*	*Native of*
1. Morus Nigra,	Black,	Asia Minor.
2. Do. Rubra,	Red,	N. America.
3. Do. Alba,	White,	China.
4. Do. Moretti,	Dandolo,	Italy.
5 Do. Multicaulis,	Many stalked,	China.

Loudon is silent as to No. 4, gives Italy as the native country of the black, and adds:

6. Morus Tartarica,	Tartarian,	Tartary.
7. Do. Tinctoria,	Fustic wood,	West-Indies.

And Sweet adds to the list:

8. Morus Italica,	Italian,	Italy.

9.	Do.	Constantinopolitana,	Constantinople,...	Constantinople.
10.	Do.	Scabra,..........	Rough,..........	N. America.
11.	Do.	Pennsylvanica, ...	Pennsylvanian, ...	do.
12.	Do.	Pumula, ...	Dwarf, ...	do.
13.	Do.	Indica, ...	Indian, ...	East-Indies.
14.	Do.	Sinensis,..........	Chinese, ...	China.
15.	Do.	Mauritiana, ...	Mauritius, ...	Mauritius.

The three last named are stove and green-house plants, and of course, too tender for our climate.

1. The black is peculiar to Europe and Asia, and does not, when introduced, stand well our northern winters. It seems from Gen. Tallmadge's letters, published in the Journal of the American Institute, that worms fed on the black mulberry make the strongest thread, and we are left to infer, that Italian sewing silk, which is of the highest repute in the market, comes from this species of the mulberry. This is given on the authority of an extensive manufacturer of Italian sewing silk.

2. The red mulberry abounds in our woods, in several of the states, but is a different species from the black of Europe. Good silk has been produced from the leaves of this tree, in Kentucky, Ohio, N. York and Pennsylvania, and we have been presented with a beautiful fabric produced from it in the first named state. It is quite hardy.

3. The white is the common kind, well known.

4. The Dandolo is a new species or variety, discovered in Italy in 1815, of great promise, and is probably identical with the Italian of Sweet, (No. 8,) and possibly with those from Constantinople, &c. Its qualities for silk are not fully known; but we believe it to be more hardy than even the common white, if, as we suspect, we have a plant of it in our grounds.

5. The multicaulis, we are obliged to persist in saying, is too tender for our climate, north of 42°. We believe all attempts to cultivate it here, will end in disappointment. The white and the black suffice in the great silk countries of Europe. Gen. Tallmadge tells us, after he had traversed Italy and France, and made silk the subject of special observation and inquiry, that "we have more of the Chinese (multicaulis,) growing than France and Italy together;" and that though the silk from the multicaulis was finer and more delicate, it required more skilful and delicate work to wind and work it.

6 and 8. Of these we know very little, except the latter should be the Dandolo; and 7 is employed merely as a dye-wood.

9. We believe to be the same as the Brussa, which is cultivated in Asia Minor, and seeds of which have recently been introduced from Constantinople, by Mr. Rand. Great hopes are entertained that it will be found useful and hardy, though these hopes remain to be confirmed—the seed not having been sown, we believe, till 1834.

The next three named, (10, 11, 12,) which purport to be American species, are not recognized, as we have before observed, by American botanists; and yet we think that on examination, it will be found, that we have more than one indigenous species.

Having alluded to the letters of Gen. Tallmadge, we make from them the following extract, for the benefit of our silk growers:—

"Finizio is an extensive manufacturer of sewing silk; he makes about 3,000 pounds a week, which is mostly sent to the New-York market. He is an intelligent man, and I found him willing to answer my inquiries; as also were several other establishments, and which mostly confirmed his statement. The sewing silks of Naples are mostly made from the silk grown in *Calabria*, where the worm is fed principally upon the *black* mulberry, and which makes the strongest and best for sowing silk. Finizio stated that the worm fed on the black mulberry made the strongest thread; *that* on the *white* mulberry, finer and better for fabrics; *that* on the Chinese mulberry still finer and more delicate. When asked if the cocoon from the Chinese mulberry required more skilful and delicate work to wind and work it, he said it did, and immediately produced two skeins, one of which he said was from the black mulberry (from a bush, perhaps, eight or ten feet in circumference,) the other from a bush about four feet. The lesser bush, he said, was less liable to break the thread in winding from the cocoon, and was used in finer silks for fabrics. The black mulberry produced a stronger thread, and would bear the larger reel, and was principally used in that business. The silk here is mostly made in the country by families in detail, and much of it reeled there, and in this condition it is brought to market. For sewing silk it is doubled as often as required, and twisted as much. This process is wholly in a *dark room*. The silk is worked wet, and for this purpose, to preserve a uniformity, the atmosphere is kept damp, the day-light excluded, and the work carried on with small hand lamps. The machine was turned by men harnessed like mules. I have since been out about twenty miles to the silk factory of the king, which is worked by water power, and by which the cocoons are also reeled. I stated to Finizio, as well as at the king's factory, that the Italian sewing silk was sold in the American markets by its weight. while the American sewing silk was sold by the skein; and that one pound of the Italian would have perhaps 250 skeins, while one of the American silk would have about 350 skeins. The cause of this difference of weight, or why the American sewing silk has a tendency to curl or knot, they could not explain without a sample, but said the weight of sewing silk could be diminished or very considerably augmented in the *dyeing*, and that good dyeing required the silk to be well *boiled* in *soap*, after which it was put into an acid, and was there prepared for the process of the dye, according to the color, as desired. The gloss, or dressing, seems to be produced by beating and twisting on a post, which, with the manual labour put upon its finish, it is supposed, prevents its tendency to knot.

"I asked if the color of the cocoon, yellow or white, gave any difference of value, or indicated a sickly worm, and the answer was that the color was casual, and the value the same; that a selection of white or yellow cocoons from which to get eggs would probably produce a like color; and Mr. Finizio, said he had some customers who had so selected and brought him *cocoons* entirely *white;* and that for white ribbons or fabrics, they commanded a greater price of from three to five per cent, though otherwise of equal value."

While on the subject of the mulberry, we will mention a new mode of propagating or growing it, related to us by a gentleman from Michigan. It is to lay the entire plant, while a seedling, in the furrow, lengthwise, at a proper distance, and to cover them with the plough. The plant sends up a number of shoots, and if left to grow, forms what is technically called a stool. We understood our informant to say, that he had eight acres growing in this way. The advantages which this mode promises, are, first, the plant is rapidly multiplied; second, the leaves are gathered with greater facility, from the dwarfish habits of the plant; and third, and we deem this a very important advantage, if the wood is killed by the winter, and this is sometimes the case, even in Michigan, and often here, the roots are preserved, the dead wood may be readily cut off with a bush hook, and new and vigorous shoots, spring up from the base. We believe this mode of growing might be profitably adopted in regard to the multicaulis.

AGRICULTURAL PREMIUMS.

In what way can agricultural premiums be best applied, to promote agricultural improvement? is a question which has been several times propounded to us, and which we have felt incompetent to answer in a satisfactory manner. That our agricultural premiums have too often been injudiciously bestowed, is confessed by all; and this has tended, in no little degree, to impair their usefulness. There are now many agricultural societies in our country, and others are being formed; and it becomes a matter of interest to inquire, in what way they can affect the greatest good. Their professed, and no doubt their true object is, to increase the profits of agricultural labor, by introducing upon our farms better stock, better implements, and better modes of culture. How far this object is promoted by encouraging extraordinary expenditure in producing *very* great crops, and *very* fat animals, may be reasonably doubted; for such crops and such cattle may cost more than they are worth in the market; so that neither the owner nor the public are at all benefitted by the experiment. But the man who introduces new subjects of culture, which increase the produce and profits of our farms;—who improves the relative value of farm stock, either in regard to the disposition to fatten, to the products of the dairy or the value of the fleece;—who invents or introduces farm implements, which abridge labor and economise expenditure; or who practises new modes of culture, manifestly beneficial to the public; in short, who makes two pounds of beef, grows two bushels of corn or two tons of hay, with the same labor and expense, and on the same area of ground, that produced or yielded but one before—becomes useful to himself and country. He greatly enlarges the means of human sustenance and of human happiness. And so far as premiums can be made instrumental in producing these results, by exciting industry and enterprise, and calling into action the ingenuity and latent talent of our countrymen, they constitute a useful and profitable expenditure.

In these matters, as in most others, experience is the best teacher. We correct our errors only as we become sensible that they are errors. The best guide, consequently, so far as climate and object correspond, is the practise of societies which have been longest in operation, and which have effected the greatest good. In these particulars, the Highland Agricultural Society of Scotland stands preeminent. It has existed more than fifty years, and increases in vigor and usefulness with its years. We subjoin an abstract of the premiums offered by this society the current year, as indicating prominent objects of improvement which might usefully engage the attention of our agricultural associations.

1. They offer a premium of 50 sovereigns, ($222,) for the best geological report and map of any county and district in Scotland, except those already reported.

2. Thirty sovereigns for the best geological and mineralogical report upon any coal district in Scotland, not already reported upon; and a gold or silver medal for a second best report, if found worthy of that distinction.

3. Thirty sovereigns for the best improvements on the threshing machine.

4. Ten sovereigns for the best essay on the inflammatory diseases of farm horses.

5. Twenty sovereigns for the most satisfactory experiments in feeding farm-horses, on raw and on prepared food; and,

6. Twenty sovereigns for like satisfactory and similar experiments in feeding other farm stock.

7. Ten sovereigns for the best set of satisfactory experiments in feeding stock in close houses and open sheds.

8. Ten sovereigns for the best and approved essay on pruning forest trees.

9. Ten sovereigns for an improved method of cleaning flax.

10. Ten sovereigns for the best detailed and satisfactory description, of a method of making hay, whether of meadow or artificial grasses, founded on personal experience, which has secured the crop under every circumstance of weather, in the shortest time and most nutritious state.

11. Two premiums of ten sovereigns each, one for the best essay on draining tile, and one for the best essay on tile draining.

13. Twenty sovereigns for the best essay on the management of sheep, with a view to the improvement of the fleece; and a medal to the person who rears the most and best poultry.

16. Twenty sovereigns for the best account of the insects which are injurious to cultivated plants.

17. Ten sovereigns for the best essay on the most effectual method of constructing reservoirs of water for agricultural purposes.

The essays to be predicated upon actual experiments, and to be accompanied, when proper, by drawings or models.

18. Gold medal for the result of the greatest number of experiments on different breeds of neat cattle, made with a view of ascertaining whether there be any peculiarity of anatomical structure which indicates a constitution in such cattle, disposing to fatten early.

20. A gold medal for similar experiments in regard to the Highland breed.

21. Ten sovereigns for the best and approved account, founded on experience, of the most successful method of preserving potatoes in good condition, in their natural state, for a period of not less than ten months from the time of their being taken up.

22. Ten sovereigns for the best account, founded on experiment, of flooding or irrigating, water meadows.

23. Fifteen sovereigns for the best mode of eradicating ferns (brakes,) from pastures where the plough cannot be used.

24. A medal for the best report on the management of the dairy.

25. Honorary gold medal for the best account, founded on observation, of any useful practice in rural or domestic economy, adopted in other countries, calculated to be useful in Great Britain.

26. An honorary premium for the best account of any district in Scotland, with reference to the present state of husbandry, and the progress of rural and general improvement.

The above constitute the first class of premiums.

The second class of premiums are to be awarded for experiments and improvements in reclaiming waste lands, and rendering them productive.

Class 3, are premiums on crops and culture;—on new plants adapted to field culture;—experiments on feeding off turnips with sheep;—for the heaviest Angus oats;—and for ploughing competitions. About 70 sovereigns are to be awarded in this class of premiums.

Class 4, relates to the improvement of pasture grounds. Premiums are offered for a report of the most successful management of pasture grounds, founded on practice—and for the greatest quantity of Italian rye-grass seed saved on a farm. Two premiums, 15 sovereigns.

Class 5, specifies 112 premiums, amounting in the aggregate to 650 sovereigns, or nearly $3,000, for improving the breeds of cattle, the breed of work-horses, the breed of sheep and the breed of swine.

Class 6, 15 premiums, amounting to 45 sovereigns, for the best butter and cheese.

Class 7, 10 premiums, of two sovereigns each, for the cleanest kept cottages; also, several premiums, to encourage, in the cottagers, the cultivation of bees.

Class 8. Eight premiums to encourage the planting of timber trees, the saving of seeds of forest trees, and the introduction of new kinds from abroad.

Class 9. A medal to the person who shall invent or improve any agricultural implement or machine, which, from its utility in saving labor or expense, simplicity or cheapness of construction, shall be deemed by the society worthy of public notice.

Class 10, embraces 60 premiums, amounting in the aggregate, to 450 sovereigns, for the best cattle, of different breeds, horses, sheep and swine, and on wool, to be exhibited at the general show of live stock, and agricultural meeting, at Perth, the current year—on the condition that the male animals shall be let to the neighboring farmers, at stipulated prices, with a view to improve the farm stock of the country.

Fifty sovereigns are also to be awarded for extra stock, implements, roots and seeds.

These premiums, it will be perceived, have in view, the *permanent* and *substantial* improvement of the country; and they cannot fail to call into action the industry, talents and enterprise of the nation.

Note well—Premiums are not awarded to the *largest* or *fattest* animals, but to those which appear the most *profitable* to propagate from—to feed, or clip—those which are intrinsically best.

AGRICULTURAL STATISTICS OF GREAT BRITAIN.

It is a notorious fact, that many districts of our country, that were originally fertile, have materially deteriorated, and have ceased to yield their wonted return to the husbandman; that large sections, which formerly produced the finest wheat, have ceased to yield it, or to yield it but in diminished quantity, and of inferior quality. We turn to Maryland, Virginia, New-England, and many parts of our own state, for evidence of the first position, and to West Vermont, and some of our northern counties, and the valley of the Mohawk, for ample proof of the latter. This poverty of the soil, and its failure to yield its accustomed increase, has resulted wholly from bad farming—from ignorance, in the cultivator, of the immutable laws of nature, upon the observance of which agriculture can alone long prosper. It is equally apparent, that unless a change takes place in their management, these lands will continue to deteriorate, and their produce to decrease. How then can the evil be arrested, the lands restored to their wonted fertility, and the inhabitants rendered thrifty and independent? That this *can* be done, is fully demonstrated by the experience of the last thirty years in our own country. Dutchess, thirty years ago, began to reform her husbandry, under the guidance of intelligent men, and we have seen that the products and value of her lands have increased four fold in consequence of these improvements—and every class of her population have prospered with her farmers. Other districts, and individuals, in every section of the state, are following in the good work. But we are about to show the progress of agricultural improvement in Great Britain—to contrast the present with the former condition of her husbandry—and to point out the prominent causes of her improvements, in the hope, that the facts we shall detail will be both interesting and profitable to our countrymen. We have abstracted these facts from a review, in the Edinburgh Review, for January, of some recent British agricultural publications.

The first evidence of agricultural improvement in Great Britain, which we shall cite, is afforded by the facts, that during the last half century, her population has considerably more than doubled,—that this population live far better now than they did formerly—and that they are entirely subsisted on the products of British agriculture, the importations of provisions during the four last years having been virtually nothing.

The population of England increased in the half century from about seven to fifteen millions, and that of Scotland in nearly the same ratio. In 1760, and subsequently, most of the population subsisted on coarse grain, with little or no meat. Thirty years ago "small farmers, agricultural laborers and those employed in the mines, almost invariably used barley." "At the end of the American war, no wheaten bread was to be seen in the farm houses, country villages and minor towns of Scotland, and but little even in larger towns. Oat cakes and barley bannocks were there universally made use of." Now, every where, wheaten bread is said to be generally eaten. In 1763, the slaughter of bullocks, and the supply of the public markets, was a thing wholly unknown even in Glasgow, which had then a population of nearly 30,000. All now consume butchers' meat. "Hence," says the reviewer, "it appears, that the extension and improvement of agriculture in Great Britain, since the middle of the last century, has been so very great, that besides enabling the country to appropriate, an additional five, but more probably seven millions of quarters of grain (the quarter is eight bushels) to the feeding of horses, it supplies food for very considerably more than double its former population, and those too living in comparative ease and affluence. "The history of the world may be ransacked in vain for a parallel instance of improvement in any old settled country."

2d. This improvement is manifested by the increased number and weight of her farm stock. In the middle of the last century, the annual sales at Smithfield amounted to about 74,000 head of cattle, and about 570,000 sheep. In 1831 these sales amounted to 156,000 head of cattle, and 1,280,000 sheep. The average weight at the former period was, neat cattle 370 lbs. and sheep about 28 lbs. Now the average weight of the first is 800 lbs. and of the latter 80 lbs.—"Hence," continues the reviewer, "on the most moderate computation, it may be affirmed, that the consumption of butcher's meat in the metropolis, as compared with the population, is twice as great at this moment as it was in 1750, and in most parts of the country the increase in the consumption has been still greater."

3d. This improvement is shown by the increased products of the soil, which it is alledged have been quadrupled.

Wheat was reckoned a curiosity in Scotland a century ago, and a field of eight acres, near Edinburgh, excited the attention of the whole neighborhood, and numbers came from a great distance to see it. "We affirm," says the Review, "that the wheat culture has increased in Scotland, generally, in a *tenfold* proportion, since 1780." At the period referred to, the whole north-western part of England, which is now one of the best cultivated districts of the empire, consisted of mere sandy wastes, sheep walks and warrens, worth little or nothing, like millions of acres in our own country, which are deemed barren and waste, but which, under proper management, might be made to yield very profitable returns.

"Previously to the peace of 1863, agriculture almost every where in Scotland was in the most barbarous and depressed state imaginable. There was no rotation of crops; fallows were unknown except to one or two counties; the process and implements were alike wretched: great numbers of cattle perished every spring; the occupiers were in extreme poverty; and famines were every now and then occurring, that sometimes laid waste extensive districts. At the beginning of the last century, and for long after, lands, even in the Lothians, were uniformly divided into *infield* and *outfield*, (that is, to adopt our phraseology, "*suitably divided into meadow, pasture and plough land.*") The whole manure made on the farm was laid on the former, which was ploughed and cropped without intermission, so long, at least, as it would bear any thing. Neither turnips, nor clover, or potatoes had been so much as heard of; but corn followed corn in unbroken series. The infield was divided into four divisions or breaks, and were cropped successively with peas, wheat, barley and oats; and the returns where about *three times the seed.*"

What a just picture do we here find of the *present* condition of many districts in our own country.

The writer then goes into a comparison of the product of 100 acres, as cultivated under the old system, of permanent meadow, pasture and plough land, and as now cultivated, under the system of alternating husbandry, with turnips, clover, &c. upon his data, the weight of the materials produced annually, as food for cattle and manure, was as follows:—

Under the old system,...................... 42 tons.
Under the new system,.................... 577 tons.

showing a balance in favor of the new system of husbandry, of 533 tons per annum, being more than twelve times the quantity produced under the old. "As to the question of comparative profit, it would be easy to show, from unquestionable data, that the new system is as superior to the old, in this respect, as it is in the supply of manure." The sandy wastes, sheep walks and warrens of Norfolk, &c., have been converted into highly productive arable land, by enclosing, marling, and the aid of turnip husbandry, which is, as it were, the corner stone of the Norfolk or improved system of husbandry.

The same practice that had made sandy wastes yield the most luxuriant crops of wheat and barley, in Norfolk, has been gradually extended, with similar effects, to many other parts of the kingdom. The produce in corn of the light soils, in all the moderately well cultivated districts of the empire, has, in consequence, been more than trebled; at the same time that a vast supply of green food has been obtained for the feeding of cattle and sheep, and the production of the most valuable manure.

"With the exception of some counties in the south and west of England, which continue in a comparative stationary state, improvements have been every where carried on with extraordinary spirit. Among the principal of these may be specified improved drainage, a better rotation of crops, the general use of bone manure, and the opening of new channels of communication. Drainage lies at the bottom of almost every amelioration; and it is prosecuted to an extraordinary extent. The practice of furrow draining (that is, by covered drains between the ridges) is now widely diffused over the north and east of England, and is carried on, on retentive or clay soils, upon a scale that will hardly be believed by those not acquainted with the facts. Landlords and tenants are every where availing themselves of this new discovery. Many millions of tile are now manufactured in the neighborhood of Kilmarnock and other parts of the country, though the supply be still unequal to the demand. A better rotation of crops is now every where being adopted. The high prices of the war tempted the farmers to sow wheat too frequently, and without proper preparation; the fertility of the soil being in consequence, materially impaired in many districts. [A salutary admonition to our wheat farmers of the west.] But this defect in the management is now nearly obviated. Clover and artificial grasses are kept longer down; barley is sometimes substituted for wheat, and the fertility of the soil is preserved." "But of all the recent improvements in agriculture, the introduction and general use of bone manure is perhaps the most important." By it the turnip crop has in some cases been increased *ten fold,* and in few less than *four* or *five* fold its former bulk. A single farmer in Lincolnshire, raises 600 acres of turnips, dressed almost wholly with bone manure. And, to quote again our author, "it is the opinion of practical men of the highest respectability, and intimately acquainted with the state of agriculture, that the raw produce of the island might be well nigh DOUBLED, *without any greater proportional expense being incurred in its productions,*" owing to the backwardness in improvement of many of the counties.

In reference to the improvement in stock husbandry, by Bakewell, Culley, and others, the writer makes the following pertinent and just remarks.

"It may be worth while to remark, that much injury has arisen from the injudicious attempts to improve native breeds of cattle.—This has been generally occasioned by prematurely endeavoring to increase their size, which is always determined by external causes, such as the climate, the quantity and species of food the animal can readily obtain, &c. It is to the immensely increased supply, and better quality of food, that the increased weight of our cattle is to be principally ascribed. An improved system of breeding would have improved the symmetry of the cattle, and increased their aptitude to fatten; but, without an increase of food, it would not have materially added to their size. In point of fact, too, the latter is an inferior consideration. The grand object that the prudent agriculturist should keep steadily in view, is the obtaining the greatest possible return for his outlay; and he will prefer that kind of stock, and that breed, of any kind, that will pay him best for the food consumed. The value to which an animal may ultimately be brought, is a subordinate consideration; the profits of breeding, as of every thing else, being determined, not by the absolute price of the produce, but by its price as compared with the expenses incurred in bringing it to market. Mr. Cully's opinion is, "that of all animals, of whatever kind, those which have the smallest, cleanest, and finest bones, are in general the best proportioned, and covered with the best and finest grained meat; I believe they are, also, the hardiest and healthiest, and most inclinable to feed; able to bear the most fatigue while living, and worth the most per pound dead. It is certain that animals, whether too large or too small, will gradually accommodate themselves to the size best adapted to their pastures; but while the larger animal becomes unhealthy, and degenerates in its form and valuable properties, the smaller animal increases in size, and improves in every respect."

The impression that we would hope to make upon the minds of the readers of the Cultivator, is that our husbandry is as susceptible of improvement as that of Great Britain was fifty or sixty years ago; and that the same means that have quadrupled her products may be successfully employed to augment ours; that drainage, alternation of crops, the general introduction of green crops, as turnips and the cultivated grasses, and the husbanding our manures—the use of lime, marl and gypsum,—are the true basis of improvement; and that if we would compete with England in fine cattle, we must imitate her example in providing for them more abundant and nutritious food.

It should be borne in mind, that half a century ago many of the lands in Great Britain were in the condition of millions of acres in our own country—either left in their wild state, as unfit for culture, or exhausted of fertility by constant cropping, and thrown into commons and wastes, like much in Maryland, Virginia, and elsewhere; that it is this description of lands which have been enclosed, reclaimed, and brought into a highly productive state, by the *new system of husbandry*—the alternating, the clover, the turnip and the draining system; and that this improvement has taken place under burthens, in the shape of tithes, poor rates and rents, to which the American farmer is in a measure a stranger, and which here would be deemed highly oppressive.

And why cannot WE *adopt the same improvements, with certainty of success, that have proved so highly salutary in our father land?* We have as strong arms, and as stout hearts, as our ancestors. But we lack the necessity which there prompts to industry and economy, and we fear the intelligence—the lights of science, that there guide and direct the labors of husbandry. Yet we are on the high road of improvement. Agricultural publications are multiplying—they are improving in character and in patronage—and it is our firm conviction, that they are adding ten per cent every year to the amount of our agricultural products. The establishment of schools of practical and scientific agriculture, which even those advanced in life may yet hope to see established among us, which shall concentrate and teach all that is most useful in theory, and most perfect in practice, will accellerate our improvements in progressive ratio. Well does the agricultural press deserve public countenance and support. It excites none of the bad propensities of our nature; but it tends to lessen the wants and the vices of the human family, and to diffuse useful knowledge, increase industry, and promote virtue and happiness. It is scattering the good seed, pure and unmixed, free from cockle, chess or tares—the seed has germinated, and under the fostering care of the husbandman it must continue to grow, and to yield an abundant harvest.

PLANTING.—No. I.

Trees give to a farm half its intrinsic value. Without trees about it, a farm house looks naked, cheerless and uncomfortable; and without trees man enjoys but a modicum of the blessings which providence has destined for his use. Trees are the farmer's resource, in most cases, for building, for fencing and for fuel. About farm buildings, they afford shelter, and are conducive alike to health and beauty. In the orchard and garden, they are sources of interest, of luxury and substantial profit. It is announced in a late Northampton paper, that Captain Hale, of that vicinity, had sold thirteen locust trees for $153, and a red oak for $30; and that a white ash, which grew in that neighborhood, when converted into plank, brought in market the round sum of $70. Besides their intrinsic value for timber, and fruit, the judicious planting of trees, in open and exposed situations, "improves the general climate of the neighborhood, the staple of the soil, as regards the gradual accumulation of vegetable matters, affords shelter to live stock, promotes the growth of pasture and corn crops, beautifies the landscape, and thus greatly and permanently increases the value of the fee simple of the estate and adjoining lands."

"What is your age?" was the interrogatory which an eastern prince caused to be put, by one of his attendants, to a very old man, seated by the way side. "I am four years old," was the reply.—"Do you intend to insult his majesty?" was the rejoinder. "No, may please your majesty—it is but four years since I began to live, as I ought, for posterity—*since I first planted a tree.*" According to this definition of living for posterity, but comparatively few of our countrymen have began yet to live; for instead of *planting*, their study and occupation have been to *destroy* trees. But every consideraton of interest and comfort admonish us, to change our habits in this respect, and to provide in time for the wants of posterity. The old settled states are already experiencing a scarcity of wood, and they contain vast tracts of land, now in a great measure unproductive, which, if planted, would in a few years yield a profitable return in wood, and the great Prairie West is rapidly filling with a population which will soon exhaust its spare woods.

Planting woodland may be regarded as a new business with us, though the Massachusetts agricultural society have endeavored to encourage it by liberal premiums, and individuals, in different parts of the Union, have directed some attention to it. It is related of a farmer on Long Island, that he planted a hundred locust trees on the birth of each child, and that the proceeds of the hundred trees, when the child became of age, afforded to it a handsome outfit. It is a branch of rural economy which we *must* begin at some time, and the sooner we begin the better. Many districts on the old continent have become desolate, and almost uninhabitable, in consequence of the total destruction of the wood. This is the condition of many tracts in Asia, in Spain, and in the environs of its capital, and even in Russia. In speaking of the maize and vine district of that empire, lying upon the Black sea and the confines of Turkey, a late writer, said to be a Russian statesman, mentions as a great defect of this region, the almost total absence of forests; and he recommends the planting of larch and other quick growing trees in spots where the soil is suitable, and sheltered from the strong blasts which sweep the plain; to rear other plantations under shelter of the first; and the planting of trees near farm houses, and villages, round the fields, along the roads, and especially in the ravines, as means of ameliorating the climate, and increasing the productiveness of the soil.

The planting of forests and ornamental grounds, has long been practised in Europe, particularly in Great Britain, where it is sedulously encouraged by statesmen as well as landholders. It has contributed much to beautify the country, as well as to improve the productiveness and profits of the soil. Some idea of the extent to which it is carried may be formed from the fact, that in the twenty-seven years between 1802 and 1809, the Duke of Bedford alone, had planted upon his estate, 1,540 acres of ground, with five million seven hundred and thirty-five thousand trees, exclusive of 680 bushels of acorns and other seeds put in with the dibble.

The business of planting, like the culture of turnips, or any other *new* branch of rural economy, seems much more formidable and expensive in prospect, than it turns out to be in practice. It may be managed upon every farm, with but trifling expense, by the ordinary laborers. Seeds of our forest, ornamental and fruit trees may be readily gathered at the proper seasons; and under the plain directions which we intend to give, they may be sown, and trees reared and planted and grown without difficulty.

It is not our intention, in these remarks, to say any thing of trees exclusively ornamental, or particularly belonging to the orchard or garden, except to express a hope, that at least orchards already existing may be spared from the axe, if not for the liquor they afford, or the important material of diet they furnish in the kitchen and in the dessert, at least for the profit of the proprietor, in feeding and fattening his hogs and other farm stock. Ample and indisputable testimony has been recently afforded, that the same area of land is far more profitable, for feeding farm stock, in an apple orchard, than it can be made in growing for them grain or roots. Our present object is to make some brief suggestions on planting forest timber, particularly for the benefit of our subscribers in the Prairie West, where, if we understand the condition of the country, this ought to be one of the first subjects that should engage the attention of the settler.

BEET SUGAR.

We have received a communication from a friend, soliciting our co-operation with the friends of improvement in Pennsylvania, in furthering the culture of the beet, and the manufacture of sugar from this root. Some gentlemen in Philadelphia, impressed with the importance of the subject, have patriotically sent Mr. James Pedla to France to acquire the knowledge requisite to the culture and manufacture. Our correspondent says, "I have samples of the sugar made from the beet root, equal to the finest loaf I ever saw, and which only cost nine cents per pound in France. When I return I will furnish you with the sample. France last year manufactured eighty millions pounds."

Had our correspondent examined our last volume, he would have seen that we had anticipated his request. At the suggestion of a correspondent in the far west, we gave a summary of the mode of culture and manufacture, from M. Chaptal, than whom no one was more competent to instruct, as he conducted the business on a large scale for twelve years, and was withal, one of the best chemists of the age. This summary will be found in pages 85, 86 and 114.—The whole process is minutely detailed in Chaptal's "Chemistry applied to Agriculture." We stated that beet sugar could be successfully cultivated in France when foreign sugar did not compete with it in the market at a less price than ten cents per pound. We did not then consider, nor did our readers probably understand, that the remark then had reference to *refined* sugar. The fact now seems to be this, that beet sugar, equal to our double refined loaf, which now sells in the New-York market at eighteen and twenty cents per pound, can be profitably sold in France, by the producer, at nine cents per pound, or at half the price of cane sugar. It follows as a matter of course, for bating the difference in labor, we *can* produce it here as cheap as they can in France, that the culture of the beet, and the manufacture of beet sugar, can be rendered *a profitable business* in this country. Our soil and climate are well adapted to the beet; and in the interior, in particular, where the price of foreign sugar is enhanced by the charges of transportation, beet sugar must ere long be among the staple products. As an offset to the difference in labor, we have an advantage in the cheapness of land. Chaptal's estimates are predicated on a rent of 40 francs ($7.60) per acre.

Chaptal states his average product in beet roots at 40,000 pounds the hectare (which is 2 acres 1 rood 35 perches English); that in his establishment he operated upon 10,000 pounds in a day; that this quantity (10,000 lbs. roots) produced, of

1 Refined sugar, 187 lbs. worth	210 francs.		
2 Middling do. 67 lbs. worth	67	"	50 c.
3 Trimmings, 1,000 kilograms, (fed) worth	2	"	50 c.
4 Mash, (fed to stock) 1,250, worth	30	"	
5 Molasses, 130, worth	12	"	
	322 francs.		

equal to about $61 on the products of one-fourth of a hectare, or something more than half an acre of land. The expense of cultivating an acre is stated at 133 francs, about $25, which includes 40 fr. for rent, and 10 for taxes, and leaves about $15.75 for cultivating, digging, transporting and storing the crop. He states the expense of cultivating and manufacturing 10,000 lbs. roots, including all charges, at 192 francs, about 36 dollars, leaving as a profit on this quantity of roots, about $25, say $35 the acre, clear profit. Upon 1,200,000 lbs. of roots, the average produce of three hectares, he estimates a nett profit to the manufacturer, after deducting interest on capital, repairs, &c., of 6,650 francs, about $1,260.

After penning the above, we received the interesting letter of M. Le Ray de Chaumont, which will be found under the head of correspondence, showing the importance of beet sugar as a household manufacture.

SUMMER PRUNING.

We are advocates for summer pruning, both from experience and philosophy. And we invite those of our readers who are wedded to the old practice of pruning at other seasons, to examine the reasoning in favor of our practice, contained in the following extract, which we make from the essay on useful and ornamental planting, published by the society for the diffusion of useful knowledge. It contains interesting facts in vegetable physiology, and indicates the propriety of early fall planting.

"Every individual leaf of a tree is furnished with its own particular series of vessels for the course of the sap, and not only prepares and elaborates the sap for the increase of substance of its own branch, but also for the parent stem and root. Hence it is that trees regularly furnished with branches from the base upwards, have more tapering stems, than trees with branches confined to the upper half of the stem, the increase being equal, from the point where the branches begin, downwards to the root; or, in other words, whatever length of stem from the root upwards is destitute of branches, that part of it, from the period of losing them, increases in size equally throughout. [Hence the importance of taking off the lower branches of trees intended for timber; and of taking out the centre shoot of fruit trees, when they have attained a sufficient height to form a top—the object in one case being to obtain a straight clean bole, for timber, and in the other a low wide-spreading top for fruit—a straight lofty tree giving the most and best timber, and a low and spreading one giving the most and best fruit.] Without a just knowledge of this principle in the economy of vegetable life, the important process of pruning in the culture of forest trees, cannot safely be performed by the forester. That the sap never ceases wholly to move is evident in the increase of the roots and buds during the winter, when the plant is leafless; but its descent is particularly distinguished for greater force and activity at two periods of the year, spring and midsummer. The ascent in the spring is the strongest, and continues until midsummer, gradually diminishing in force as the new branches and leaves are perfected. This generally takes place about the beginning of July, when an apparent cessation of ascending motion in the ascending sap immediately succeeds, and continues usually for the space of a fortnight or three weeks—[during this apparent time of cessation is the proper time to prune] according to the age of the plant and the state of the weather. A second ascent of sap, and growth of shoots, now take place, but with diminished vigor; unless from accident, disease or unfavorable weather, the spring growth has been checked, and the first flow of sap prevented from being exhausted, in the production of branches, leaves and blossoms. It is worthy of remark, that those shoots which form fruit, flower or seed buds, have seldom, if ever, any second growth; but remain without increasing in length until the next spring. The midsummer growth is almost always confined to those branches which carry wood buds only. *After the second growth is completed, the effects of the descending sap in the formation of new bark is apparent in the healing up of wounded parts of the stem and branches, which now proceeds with more activity than during any other season of the year.* Branches pruned off smooth at the stem, though the latter be healthy, young and containing a perfect pith, *before or shortly after the completion of the midsummer growth, do not produce shoots from the edge of the wounds caused by their removal, which always happens, more or less, when pruning is performed on free growing trees after the fall of the leaf, and before the full development of the spring shoots and leaves.* It is to be observed, however, that the reproduction of branches from the edges of a wound is greatly assisted by leaving a portion of the branch or shoot, on its parent branch or stem." See p. 4, 16, 17.

HAYMAKING.

Why is it invariably recommended, when medicinal herbs are to be preserved for use, that they be dried *in the shade?* For two plain reasons; first, because an intense summer's sun deprives them of a portion of their medicinal virtues; and secondly, to prevent their quality becoming deteriorated by dew and rain. The same precaution is observed in the curing of hops, and it is no less important in the curing of hay. The sun abstracts much of the best properties of both. It is for these reasons, that in many of the best farming districts, the grass is never *spread* from the swath; but, after it has partially dried there, it is *cured* in the cock, where it dries evenly, that is, the moisture becomes equalized in the mass, and the stems dry as fast as the leaves,—and where neither the sun, nor the rain, nor the dew are liable to do it material injury. And we contend, that there is not only a great improvement in the quality of the hay, by this process of curing, but an increase in quantity, the leaves and finer parts being all preserved, and a manifest saving in labor. The labor of spreading and raking is in a measure saved; the grass being cocked from the swath with the fork, and after it has cured there, the hay being partially spread for two or three hours to complete the process. We gave our mode of management in our last volume, and it might be deemed superfluous to repeat it here; but we earnestly beg, that farmers who have not adopted it, will give it at least a partial trial this month, especially with clover. We estimate the gain, in this crop, by the new over the old mode, at least one-third.

EXPERIMENTS WITH THE POTATO.

Mr. Howden, of Scotland, has made experiments with 130 varieties of the potato, most of which are unknown among us. From the table which he published, the product of the different species varied from 280 to 745 bushels the acre, we suspect Scotch measure. The produce of four eyes, cut from the cluster species, and planted in four different kinds of soil, was—

On a strong rich loam,	34	pounds,
On a light rich loam,	29	"
On a good gravel,	19	"
On a sandy soil,	15	"

In an experiment accurately managed, under the London Horticultural Society, with a view to ascertain whether whole potatoes or sets were best for seed, five acres of ground were taken for the experiment, and five kinds of potatoes were planted, one half with whole tubers, and the other half with pieces containing one eye each. There was obtained—

	Tons.	*Cwt.*	*Lbs.*
From the tubers,	113	2	17
From the single eyes,	111	3	54

The difference, about two tons, was hardly equal to the difference in the weight of seed. From a series of experiments made by the society, they publish the opinion, "that, in order to acquire the greatest possible weight of potatoes, per acre, it is necessary that large, heavy sound tubers should be employed; and that the space allowed for the growth of each plant, should be as nearly as possible such as it would naturally occupy, if suffered to spread freely on all soils without interruption; that this space will vary according to the habits of different varieties, and can only be determined by actual experiments; and that too much, and too little room, are alike injurious to productiveness. Finally, that it is quite practicable to double the crops that are usually obtained."

Mr. Knight raised 34 tons 9 cwt. per acre, which, estimating the bushel at 60 lbs. would be about 1,166 bushels to the acre; and he is of opinion that still larger crops may be obtained. The soil was a rich garden mould, and the manure employed was chiefly decayed oak leaves. The tubers were planted nine inches in the soil, and the mould was afterwards raised three inches higher in ridges, to guard the young plants from frost.

The *Rohan Potato*, a new variety which has lately appeared in Switzerland, surpasses all others in size and productiveness, and is said to be very farinaceous and of excellent flavor. Three tubers, chosen at random, weighed 13 lb. 11 oz., 11 lb. 9 oz., and 9 lb. 13 oz., and a small tuber, having only four eyes, weighing, when planted, a few grains less than half an ounce, produced 48¼ lbs. The earth is dug 20 inches deep, and the sets, containing two or three eyes, are dibbled in, four feet apart. This statement is from *The Cultivator*, of Jan. 1835, published in Switzerland. A dozen tubers of the Rohan potato have been received from France, and planted by a friend in the county of Greene; so that if they are as valuable as represented, we are likely to profit by them.

"*Come, let us reason the matter together.*"—It is a practice with many farmers, in ploughing sward ground, to endeavor to turn the furrow-slice entirely over, so that the grass side shall lie flat in the preceding furrow; while others lap every furrow-slice on the one which precedes it, so that it reposes in an angle of 45°. The latter is called the improved mode of ploughing. When the furrow-slice is laid quite flat, "the weight and tenacity of the soil consolidate its surface almost immediately, and obstructs the action of the weather in breaking down the texture of the soil, as well as that of the harrows in raising a tilth, or the greatest depth of mould for covering the seeds," and if the surface is level and the soil tenacious, the water when in excess, having no passage under, reposes upon the top of the sod. But when the furrow-slice is lapped upon the preceding one, in an angle of about 45°, every furrow forms an underdrain for the passage or reception of the water, leaving the surface dry; the greatest possible surface of soil is exposed to the influence of the atmosphere; the soil is kept loose and porous by the breaking down of the sod, as the roots of the grasses in it decay, and the harrow, by reducing the projecting angles of the furrow-slice, readily produces a fine and deep tilth.

STANDARD WEIGHT OF GRAIN.

By a law passed at the last session of the Legislature, the standard weight of grain is as follows:

Wheat, the bushel, ...	60 lbs.	Barley, the bushel, ...	48 lbs.
Rye and Corn, do.	56 "	Oats, do. ...	32 "

New Plough.—We have received notice of a material improvement in the plough, made by Thomas Midford of Hyde-Park. The advantages of this improved, over the common plough, are represented, by our correspondent, to consist—1. In requiring but half the power of a common plough to propel it; 2. The facility with which it may be regulated, as to breadth and depth of furrow-slice; 3. In requiring no one to hold or guide it, except to enter it at the ends of the furrow, which may be done by the team-boy; and 4. In performing the work better than any ploughman can do it with the common plough. Such are its advantages as represented to us. If it possesses half of them, Mr. Midford has effected an important improvement.

The Grape.—Dr. Hogg, a British traveller, speaking of the luxuriant growth of vegetables upon the older lavas at the base of Mount Etna, says, "The grapes are here universally cut down to *within six inches of the ground*, a mode of cultivation which accounts for the superior excellence and strength of Sicilian wines."

ESSEX (MASS.) AGRICULTURAL SOCIETY.

We love to refer our readers to this society, because it is an old one, has done and is doing much good, and its organization and means promise to perpetuate its usefulness. It has been eighteen years in operation. Its permanent vested funds exceed $6,000, the income of which is about $600; and other $600 are annually drawn from the state treasury, thus affording the society about $1,200 per annum, to be awarded in premiums, and to defray expenses. Their proceedings are annually published in a handsome 8vo. pamphlet, of about 100 pages, the last of which has been kindly sent to us by the secretary, J. W. Proctor, Esq. The address affords a happy illustration of the advantages which have resulted from agricultural societies *down east.* "I suppose," (we quote the words of a reverend clergyman)—" that ten bushels of rye to the acre, twenty of Indian corn, one ton of English hay, and 200 bushels of potatoes, were formerly considered as average crops. Since premiums have been offered, we have claims for from forty to fifty bushels of rye, from one hundred to one hundred and twenty-two of corn, from three to four tons of hay, and from four to five hundred bushels of potatoes. Our improvements have not been confined to single acres; in several instances the products of entire farms have been more than quadrupled."

We extract from the pamphlet of 1835, some facts from which others may profit. D. Putnam drilled in half an acre of corn, one-third early in May, one-third late in that month, and the other third 10th June, *to furnish a succession of green food for his cows.* The produce amounted to eight tons. Mr. Putnam has an acre of irrigated meadow, the product of which was *one and a half tons of hay!*

Elias Phinney, of Lexington, raises *three good crops with one ploughing*, viz: corn, rye and grass. His practice is, to manure well a piece of greensward, plough and plant it with corn in drills; cultivate superficially, so as not to break the sod, but never to make hills; gather his corn crop, then run a shallow furrow through the rows, sow rye and timothy, and smooth off with a bush harrow—the second year cut his rye, and the third year his grass. Two acres thus managed, produced 140 bushels corn, 69½ bushels rye and five tons of hay in three seasons.

The pamphlet contains an interesting paper, drawn up by the Rev. H. Colman, *on cutting and preparing food for cattle and horses*, in which many facts are adduced to show the saving of fodder effected by the practice. We quote two of the many cases in the statement:

1. In 1816, Mr. Hale, proprietor of a line of stages running from Newburyport to Boston, purchased for his stable, from April 1 to October 1, six months, and fed uncut, 32 tons, 4 cwt. 10 lbs, hay, at $25 per ton, ...			$800 00
From October 1 to April 1, 1817, he purchased for the same teams, and cut,			
Straw 16 tons, 13 cwt. 3 qrs. 10 lbs....	160 23		
Hay 13 " 14 " 1 " 0 " ...	350 00		
		$510 23	
Deduct on hand April 1, by estimation, four tons more than there was Oct. 1, at $25 per ton, ·		100 00	
			410 23
Saving, by the use of the straw cutter, in six months, ··			$390 77
Consumed by 25 horses belonging to the Salem stage, from April 1 to Oct. 1, 1816, and fed uncut, 22 tons at $30···			$660 00
Consumed by the same horses from October 1 to April 1, 1817, cut,			
Straw 15 tons 13 cwt.		$187 80	
Hay 2 " 15 "		81 00	
			268 80
Saving in using chopped fodder, ...			391 20
Total saving in using straw cutter nine months,			
At Newburyport, ...		$339 77	
At Salem, ...		391 20	
			$780 97

The horses had the same allowance of grain during both periods.

2. Mr. Shelden, of Beverly, took accurate account of the feed required for his stock of fifty-one head of horses and neat cattle, when fed uncut and when cut; the result was, he saved $2·86 *per*

day by cutting his fodder, besides "an increase of six gallons of milk per day from his thirty-five cows," and "likewise something for the improvement of the condition of his whole stock."

The trustees seem wisely determined to make provision for the next generation, in articles of the first necessity, wood and timber, by encouraging the planting of forest trees. They offer premiums amounting to $240, for the greatest number of oak, locust, larch, white ash and chesnut trees, raised from seed on an acre, the number in each case not to be less than a thousand. They also offer premiums amounting $80, for the greatest plantation of mulberry trees; and also premiums for the best specimens of silk produced in the county. Massachusetts is giving substantial proofs of the utility of patronizing her agricultural societies, which New-York does not, or will not, understand.

Saxon Sheep.—E. C. Marsh, Esq. of Cayuga, an extensive wool grower and wool dealer, wishes us to record his testimony in favor of the excellence of the Saxon Merinos. He states that he has 100 Saxons, which he has reared from ten ewes, from Mr. Grove's flock; that they have had the same fare as his Spanish, or old fashioned Merinos; and that his Saxons are hardier and healthier than his Merinos.

Summer Drink.—We repeat our recommendation to farmers, to try *oat-meal and water* as a summer drink, in the hay and harvest field. It is grateful, wholesome and nourishing, without a single bad property. Put two or three table-spoonfuls of the meal into a three-pint pitcher, fill up the pitcher with water, let it stand fifteen minutes, and it is fit for use. N. B. "*When taken to be well shaken.*"

CORRESPONDENCE.

ON THE MANUFACTURE OF BEET SUGAR IN THE U. S.

Paris, April 15, 1836.

My Dear Sir—A long space of time has elapsed since my last communication to the State Agricultural Society. Meanwhile I have not had a moment out of mind the promise I made in it to resume the pen as soon as I should have something worthy of being recommended to their attention. It is long since I have been convinced of the vital importance for France of raising the beet root and manufacturing it into sugar. Some time after my last arrival in the United States, some of my friends wanted me to encourage it in America; one of them, chiefly, who had seen my successful establishment at my estate in France, and who knew I had received from the French government the gold medal offered for the best making of the beet sugar; but I could not recommend it for the United States, when I had witnessed how few had succeeded in this country, even during the reign of Napoleon, when sugar was four times the price it is now. Indeed, after that time the working of the beet sugar was entirely given up in Europe, except in France, where even I was almost the only one who would not give up so easily the hope of the great advantages that discovery was to offer one day or another, to a great part of the world. The benevolent monarch who succeeded the great emperor, was soon persuaded that there would be a great benefit for France in encouraging this new branch of agricultural industry. However, nothing more was found necessary to accomplish the object than a simple honorable reward for the most successful; for if the making of beet sugar was really useful, it would soon be proved by the benefits the manufacturers would make. The price of sugar had fallen more than one-half, and many persons who had invested great capitals in the undertaking, met with very serious losses. However, several continued, and new improvements were keeping pace with, and even overbalanced the disadvantages of the constant lowering in the price of sugar. But, sir, I could not give any encouragement in the United States to similar undertakings before the improvements in the manufacturing of beet sugar were made. I am persuaded that it would have been the cause of complete failure in the attempts made by any one till very lately, though it has given great profit to some great establishments in France for a few years past. This I will demonstrate when I enter into more detail.

For the present moment, what I have said above will be sufficient to answer the double purpose of justifying my reserve upon this, so interesting subject, and deserving at the same time the confidence I wish to attain now, when I recommend the cultivation in the United States of the sugar beet, without any further hesitation, for the purpose of manufacturing it into sugar. I am convinced that it will be a very advantageous agricultural pursuit in all parts of the United States, and chiefly in the middle and northern states. The great difference in the price of labor between France and America, which in the account of profit and loss, has produced a balance against the United States in the contemplation of this operation, is now overbalanced by the new discoveries and improvements in the fabrication of the beet sugar. To them, add in favor of the United States, the cheapness of the soil for the cultivation of the beet, and of the fuel for manufacturing the sugar. Those advantages are to be found in all the new states, and some considerable parts of Pennsylvania and New-York. There, also, they will have on their side, in uncommon abundance, the fine water powers, which more than any thing else remedy the difference in the price of handwork between Europe and America.

But, sir, while I was admiring here, in the splendid establishments of this new industry, their fine machinery and their improved chemical processes, I was lamenting that the small proprietor or the farmer could not employ directly his produce by manufacturing himself. I am but just now perfectly satisfied that he can do it, and that with very inconsiderable expense, and without hiring any help; but simply with that of his family. I will quote the particular instance of a farmer in the north of France, (near Valenciennes,) who has received a medal from the Royal and Central Agricultural Society, for having established on his farm one of the first small beet sugar manufactories, where he makes daily, without any assistance, but that of his family, 100 pounds of sugar fit for family use without further preparation. The whole house room consecrated to that purpose, is a room 16 feet square, and a cabinet 10 feet by 12. Now, sir, you can undoubtedly appreciate at once all the advantages that a farmer can reap in cultivating and manufacturing the sugar beet. It will be greater yet for those who have, as in the north of Pennsylvania and New-York, the maple sugar. The making of beet sugar may begin in October, and end commonly in March; it is just at the moment when the maple sugar is more commonly made; so that the same implements will answer for both manufactures, and the farmer will have employ for his family during the months when they have most leisure.

The Royal and Central Agricultural Society have just offered several handsome premiums, for whoever will communicate within this year the best methods for manufacturing the beet sugar on small farms. This has given me the idea of not waiting for my arrival in America, for recommending immediately the cultivation of the beet, so that experiments may be made this fall and winter, by employing some of the best systems discovered here, and such as the inventive genius of Americans will not fail to discover.

I remain, my dear sir, with sincere regard, yours,

LE RAY DE CHAUMONT.

Hon. Jesse Buel.

P. S. I should have liked to add some notes upon silk and mulberries; but Mr. Tallmadge, with whom I am going to-morrow to see one of the largest establishments in France, will publish something upon the subject. If beet seed enough cannot be procured, a pretty large quantity will be found at Messrs. De Launay, Burgy & Co. in N. Y.

SAXON SHEEP AS HARDY AS MERINO OR NATIVE SHEEP.

Mr Buel—Dear Sir—In your May number of the Cultivator, I find a piece over the signature of G. T., on the relative properties of the Merino and Saxon sheep, and believing as I do, the wool growing business of vast importance to those districts fitted by nature for sheep, and having been for more than twenty years in the practice of keeping a small flock, and the different characteristics given of the two kinds varying so much from my own experience, that I feel called upon to state to the public, through your valuable paper, my knowledge of the two rival breeds. In the fall of 1815, I commenced with the Merino sheep, by the purchase of a full buck with native ewes, and run my flock up as fast as I could, with full bucks and a few full ewes, until 1829, when I sent to the east, and received twenty-five Saxons of choice selection, and from that time till the present, have been pushing into the pure Saxon as fast as possible for one with limited means. My flock is not now purely Saxon, but nearly so, consisting of 230. And, sir, from all I can discover, my present stock are as hardy as it has ever been; I have never housed nor grained any but lambs and some few invalids, except in the time of lambing, when my ewes are sheltered every night; and, sir, I raise as many lambs from my Saxons as any of my neighbors, in proportion to number of ewes from Merino or native flocks. My present lot of wool brings more than any other in the county, and very nearly as heavy fleeces as my former lot of Merinos. I will now proceed to give you an account of the manner of wintering the past severe winter, with the present condition of my flock: the old ones, that is, all but lambs and a few old ewes, 160, were kept together in my yard without shelter, and with no other food than good fine hay, and free access to a trough of pure water; the hay well salted when put in the mow, and, sir, on the first day of April, numbered the same as in the fall, healthy and robust; and from about 100 ewes, have this day, May 11, rising seventy fine healthy lambs, and ten or fifteen more to bring lambs. And now, sir, if you think this worthy a place in your paper, you are at liberty to publish it. Yours respectfully,

Oxford, N. Y., May 11, 1836. IRA NOBLE.

THE UTILITY OF COUNTRY SAVINGS BANKS DEMONSTRATED.

Mr. Buel—Sir—In the Cultivator for May, I saw an article "On the utility of Savings Banks in the Country" from W. W. J. Nothing would give me greater satisfaction, if I were capable of using language as "able and influential" as W. W. J., than to write an article on that subject in answer, as I have had some experience in the care of such an institution for nearly twelve years, in a country town of 2,300 inhabitants. Supposing the state government should enact a general law, to enable any town in the state to establish institutions for savings upon such a plan, as will give all the privileges necessary to *have* for its management, by leaving a copy of the articles of their association with the secretary of state, and conform to the general laws. Perhaps the general law ought, however, to be on a liberal plan, especially where no other bank exists in the town; as if the trustees should make application for a loan, or if they should offer to be responsible for others.

Probably such an institution in nearly all the towns of the state, would do away the necessity of having but very few of the common money making banks now existing. We have had a bank for savings in our town for nearly twelve years. It began with several opponents, and for a while was rather unpopular. At the first meeting of doing business, five individuals deposited eight dollars in the whole; from which time it went on with a steady increase for nine years, to the momorable panic times, when it amounted to $8,000; however, within three or four months' time one-third of the amount was called out by the depositors, and nearly two years passed by before we had in the bank the same amount again. We have been, generally, successful, and have never lost a debt, find no difficulty in lending the monies, and have always been ready to pay off to depositors, with their five per cent interest, by their giving the required notice. We now have a surplus fund over and above paying the principal and five per cent interest, and all expenses of its management; but this could not be, had not the trustees given their services, and the treasurer taken up with a trifling sum.

The operation of this bank has broken up the note shaving business in this place, and I think it has wonderfully lessened the number of writs against poor debtors.

Our mode of receiving monies for deposites is the same as with other savings banks, but in loaning the monies, we endeavor to accommodate the borrower likewise. The smallest sum we lend is $10, for 120 days. This is considered, probably, by most of the inhabitants, to be one of the best institutions among us.

This bank never was incorporated. It has had no chartered privileges, nor no legislative restrictions, but to obey the state laws.

This institution, from appearances, has benefitted more people, without injuring any, excepting half a dozen note shavers and one or two lawyers, than any other similar institution in the country, according to the amount of its deposites.

One part of your remarks is correct, wherein you say: There is a difficulty—that of inducing responsible persons to take charge of such banks gratuitously. We may, however, conclude, that the inhabitants of many towns would subscribe one or two hundred dollars to make the first deposite, and let it be drawn out as needed, to defray the expenses, until a surplus fund has accumulated sufficient to do it. G. T. E. C.

Enfield, Ct., May 23, 1836.

BEMENT'S TURNIP DRILL.

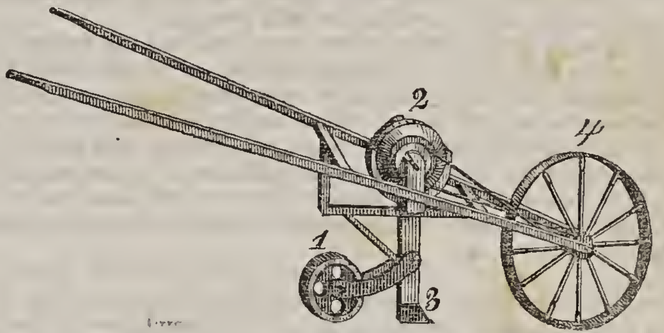
Mr Buel—There is scarcely any part of the extensive and important science of agriculture that has received greater improvement within these few years, than that relating to the construction of farming utensils.

Among the great variety of different implements which have been presented to the attention of the farmers, some, as may be readily conceived, have appeared, that are evidently much too expensive and complicated in their construction, for the purposes intended; and others, probably from a want of practical information in the inventor, have not been properly adapted to the uses for which they were designed; but in general they have been such as have contributed much to the present very improved state of the art.

The first drill machine was invented by a German, and presented to the court of Spain, in 1647; but it appears, from a communication to the Board of Agriculture in Britain, that a sort of rude drill or drill-plough has been in use in India from time immemorial.

"In the construction of all implements of this sort," says Dickinson, in his Treatise on Agriculture, "the greatest attention should be paid to have them as simple in their construction as possible, in order that they may be used without difficulty by those who have but little knowledge of the nature of such machinery; much care should also be taken to have them so made as that they may perform their work with correctness; that the seeds, of whatsoever kind, may be delivered and deposited in the ground with the greatest evenness and regularity; and that they may not be bruised or injured in any way during the application; as the want of proper attention to these particulars seems to have considerably retarded the progress of the drill system of cultivation."

Fig. 27.



The machine figured above, is simply a Tunrip Drill, which is nothing more or less than a modification of the Northumberland Drill. It consists of a frame and wheel, fig. 4, with a grooved nave to receive the band, which passes round a pully on the end of the tin cylinder, fig. 2, barrel-shaped, the centre pierced with holes for the seed to escape into a funnel which conducts them to the drill, fig. 3, which forms the rut, and deposites the seed. Fig. 1, is a cast-iron roller which follows, covers and presses the earth to the seed. In using, the laborer pushes it before him, sows and covers one row at a time. From three to four acres in a light soil, placing the rows thirty inches apart, may be put in per day if required. It is very simple in its construction, very light, and not liable to get out of repair, and can be used by a boy or any person who can walk on a straight line.

They are manufactured by the subscriber, and sold by him at 82 State-street, and Wm. Thorburn's Seed Store, Market-st., Albany, price $8.

☞ Orders may also be left at 94 Broad-street, or at Huxley & Co.'s, 102 Barclay-street, New-York.

Albany, April, 1836. CALEB N. BEMENT.

Sherburne, May 17, 1836.

Mr. Buel—Sir—Can you prescribe any feasible plan to destroy weavels? if not, I wish you would ask the question in the Cultivator, possibly it may catch the eye of some person that can, and you will oblige a MILLER & SUBSCRIBER.

Answer—The Society of Meux, in France, recommend that cloths, made of flax or hemp, be soaked in water, wrung out and spread over the grain. In two hours time all the weavels will be upon it. It must then be carefully gathered up, that none of the insects may escape, and immersed in water to destroy them. A plant of henbane, placed in the middle of the corn, will drive them away. The like efficacy is ascribed to cloth saturated with nitre, and also to aromatic herbs, as mint, sage, &c. We have tried none of these means, but notice them on the authority of the *Domestic Encyclopœdia.* The shavings of red cedar, which are odorous, and cloths sprinkled with spirits of turpentine, will preserve woollens from the ravages of moth, in summer. They may be efficacious, in grain, to protect it from weavel.

EXPRIMENTS WITH SWEDISH AND OTHER TURNIPS—BAD PROSPECTS OF THE CORN CROP, &C.

Mr. Buel—Encouraged by the kind invitations you have so often given to young farmers, to make known through the columns of the Cultivator, the result of their agricultural experiments, I will inform you of my success in cultivating the ruta baga. I was led to its cultivation by the high recommendation you gave it, for I never saw it until growing in my own field—the farmers in this section being generally unacquainted with the root or its value. The ground selected, was a gravelly, sandy soil, and had been tilled, without manure, for five successive years, and the three last years in potatoes, by the tenant who occupied the premises, consequently it was very poor. The spot on which they were sown was but the one-fifteenth of an acre, in one corner of the field. The field was ploughed in May, and lay until the time of sowing, June 30th, when I drew on four loads of short manure, the scrapings of my barn-yard. This was spread evenly, and three bushels of ashes and one peck of plaster sowed on it, the whole ploughed in and harrowed level, and the seed sowed by hand in drills, eighteen inches apart. They were afterwards dressed out by hand four times, on account of the ground being very weedy, but were not thinned until the last hoeing, when the tops soon covered the ground, the rows overspreading each other.

After pulling, topping and cutting off the roots I had 55½ bushels, *good* measure, being at the rate of 833 bushels to the acre. I observed your directions in securing them for winter, and on opening the pit this spring, found them as sound as when placed there. My cattle evinced an uncommon fondness for them, and they were of great service to my cows. I considered them well worth three shillings per bushel, when hay was selling for $20 per ton.

I had likewise some turnips of the green and red top variety cultivated by the side of the ruta baga, in the same manner; the yield was a fine one; but this spring they were pithy and light, while the Swedes were sound and heavy. I was so pleased with this root that I intend hereafter to cultivate it more extensively, and as far as I am able, induce the farmers of my neighborhood to commence it. The errors I committed were, first, the rows were placed too close togethered; and second, they were not thinned in season, two serious injuries to the crop.

A receipt for the cure of bots in horses, extracted from the Genesee Farmer, in the second number of the second volume of the Cultivator, I have no doubt saved the life of one of my horses. He was so far gone with the disease, and enfeebled by the pain he endured, as to be unable to rise, and was pronounced beyond recovery by a number of persons present. I recollected this remedy, procured the ingredients and put them down him, in fifteen minutes repeated the dose, and in half an hour after the horse got up and went to feeding, to the surprise of myself and all present.

No other remedies were tried.

The corn crop in this section wears an unfavorable aspect. By far the greater part planted has not germinated, owing to the drought which existed at the time of planting; what little has made its appearance above ground, is immediately attacked by the grubs, which have made their appearance again this spring in great numbers.

Permit me, before closing, to express my approbation of the Cultivator, and the pleasure I take in perusing and reaping instruction from its pages. Each number more than returns to me the subscription price, in the knowledge I obtain from it. The two volumes I have had bound. I trust its patrons will universally adopt this course, and by this means preserve the work for future reference, and for the perusal of their children. The cost of binding is but 37½ cents, and it certainly would make a valuable acquisition to any farmer's library.

Respectfully yours,
D. FULLERTON.
Minisink, Orange Co., June 2d, 1836.

We particularly commend, to the friends of the Useful Arts and National Industry, the following circular, from the trustees of the American Institute—too long omitted in our columns.

"The benefits which have attended the annual exhibitions of the useful productions of our country, and the constantly multiplying improvements of invention and the arts, have induced the American Institute of the city of New-York to procure a suitable place for a continued display; for which purpose a spacious hall has been taken for a term of years, in that public and pleasant situation, No. 187 Broadway, between Cortlandt and Dey-streets, to be denominated The Repository of Arts of the American Institute. It will be opened in the early part of May next. It is intended to collect, in one great hall, machines, models, specimens, and drawings, of all the important improvements and inventions which our country affords; and for that purpose manufacturers, mechanics, artizans, inventors, and producers generally throughout our country, are invited to contribute of their varied products.

The knowledge thus to be derived by enabling all to become acquainted with the improvements and products of each, will contribute greatly to general success in this unprecedented age of competition in the useful arts.

The great work in which the Institute is engaged, is no other than to supply the conveniences and comforts of life, with the greatest economy and abundance, and in the highest perfection. There is not a place on the globe, better calculated than the city of New-York for an infinitely varied museum of curious and beneficial productions. Will the fostering patronage of the public be extended to this Repository? The answer involves its existence. From that answer we have nothing to fear. For eight successive years, this Institute has been cheered and strengthened by increasing confidence and patronage. Our fellow citizens have sanctioned all our measures with their decided approbation. They have virtually said: Your measures have conduced to the prosperity, independence, and glory of our country. Go on—we *have* sustained, and we *will continue* to sustain you. We embark therefore with renewed and unabating confidence in this undertaking, in the full assurance of its paramount utility, and nothing doubting but that the public favor it will receive, will be fully proportioned to such utility; and thus, under the auspices of the American Institute, every individual in our whole country will have full opportunity to profit, according to his or her talent, in the arts or the sciences or individual industry.

The space assigned to each contributor, will necessarily be limited. The models, specimens, &c., must be graduated accordingly.

MARTIN E. THOMPSON, GEORGE BACON,
CLARKSON CROLIUS, EDWIN WILLIAMS,
GEORGE SULLIVAN, T. B. WAKEMAN.
New-York, March 30, 1836. *Trustees of the Institute.*"

TO FARMERS.

At a meeting of the Board of Managers of the Farmers' Agricultural Society, held this tenth day of June, 1836, at Mr. Bergan's Hotel in Louisville, Otsego county, it was resolved to offer the following premiums, under the annexed rules and regulations, for stock, &c. &c. to be exhibited at the annual meeting of the society, to be held at Louisville on the first Wednesday in October, (the 5th) 1836.

For the best bull of any breed over one year old and under two years old,	$5
For the next best as above,	3
For the best heifer of any breed over one year old and under two years old,	3
For the next best,	2
For the best yoke of working oxen over four years old,	8
For the next best,	5
For the next best,	3

In adjudging these premiums, consideration will be had, not only to their close matching, handsome appearance, and good condition, but particular regard will be had to their good training, ready obedience, handiness, action, and docility—to be proved by their performance on the ground, where a loaded wagon will be provided for the necessary trial.

For the best pen of five ewes of the common or mixed breeds of long woolled sheep,	$5
For the next best,	3

By the term of "long woolled sheep," is to be understood all those sheep which have been crossed with the Leicester, Bakewells, Lincolns, or other long woolled sheep of the pure breeds, in contra-distinction to the Merino cross, regard being had to the length, weight, and fineness of the wool, and the excellence of the carcass.

For the best pen of five ewes of the common or mixed breeds of short woolled sheep,	$5
For the next best,	3

By the term "short woolled sheep," is to be understood all the varieties of mixed Merino and common blood, regard being had in this case to the combined excellence of a fine, close, heavy fleece, and a good mutton carcass.

For the best mare from four to ten years old,	$4
For the next best,	2

As this premium is offered with reference to breeding, it would be desirable where there is any produce, to exhibit it with the mare.

For the best boar pig over nine months,	$3
For the best sow over nine months,	3
For the next best,	2

Besides the above premiums, the Board of Managers, feeling particularly anxious to stimulate our dairies to an increased care and attention in the nice operation of producing good butter and cheese, resolve to offer the following premiums for that object, not doubting but Otsego will do herself justice in this.

For the best butter packed in pots or firkins of from twenty-five to fifty pounds each—not less than one hundred pounds to be exhibited,	$10
For the next best sample,	7
For the next best sample,	5
For the best quality of cheese, not less than two hundred pounds to be exhibited,	10
For the next best sample,	7
For the next best sample,	5

The Board of Managers regret that, from the infancy of the society, their present funds do not warrant the extension of premiums this year to other objects than those named—otherwise it would have been desirable to have given premiums for the culture of certain crops, and for the improvement of agricultural implements, as well as for other important varieties of stock not here named.

All which, we confidently hope, the subscriptions of another year, by the increase of our members from amongst the intelligent and liberal portion of our farmers, will enable the society to accomplish. While on the present occasion, the deficiency in regard to stock has been in some measure met by the privite premiums, we are authorized to offer by one of our members for the following animals:

For the best grade or half-bred short horn heifer calf,	$8
For the next best,	6
For the next best,	4
For the best grade or half-breed short horn bull calf,	3
For the next best,	2

In adjudging these premiums, reference will be had to the near approach of the calf in those characteristic points and qualities which distinguish the full-bred animal.

For the best grade or half-bred South Down ewe lamb,	$4
For the next best,	3
For the next best,	2
For the best grade or half-bred South Down buck lamb,	3
For the next best,	2

In awarding these premiums, reference will be had to the characteristic excellencies of the full bred parent stock, both as to carcass and wool; the South Down being a breed of established excellence as a mutton sheep, and carrying at the same time a fine, *close* fleece.

For the best pure bred Merino yearling buck,	$6
For the next best,	4
For the next best,	3

In judging of this stock, especial reference will be had to the best properties of the real Merino sheep, which we consider to be weight, compactness, and quality of fleece, together with that form which best indicates vigor of constitution, so essential to sheep husbandry in this district of the country under its present management. The fleece is expected to be exhibited with the sheep.

The Board of Managers also inform the members that there is a sweepstakes open for yearling heifers of the improved short horn breed. Five dollars entrance; for which three entries have already been made with the secretary of the society. No entries allowed after the first of August.

A sweepstakes is also proposed for the best half acre of ruta baga. Fifty cents entrance—all entries to be made on or before the first day of September, with the secretary of the society.

Rules and Regulations for the Cattle Show, &c. &c., to be held at Louisville, Otsego county, on Wednesday, October 5th, 1836.

All entries of stock intended for exhibition or premium, must be left with the corresponding secretary of the society, on or before the twenty-seventh of September next, stating for what premium they are entered.

The difficulty of making the necessary arrangements for the stock without such previous notice, renders a strict enforcement of this rule indispensable.

All animals intended for exhibition or premium, must be placed under the direction of the officers of the society by 8 o'clock A. M., that they may be arranged in their proper places, where they must remains until liberty for their removal is obtained from the keeper of the pens.

Written statements, signed by the owner of any stock exhibited for premium, shall be filed with the secretary, Jonathan M. Lull, on or before 8 o'clock A. M., stating age, breed, and how fed, together with any other particular management or circumstance attending the animal, when a certificate of entry shall be given, and the number of the pen assigned to the stock.

Working oxen must be ready for examination and trial by ten o'clock A. M., on the hill by Luther M. Skidmore's residence, just without the village, on the road to Gilbertsville.

No owner or interested person or persons shall be present wi h the committee during their examination of the stock or other objects for premium, unless called for by the committee.

No animals but such as are bred within the county of Otsego, and are the property of members of this society, can be offered for premium.

In cases where there is no competition, and the object exhibited by the individual be deemed not sufficiently excellent to merit a premium, it shall be in the power of the committee to withhold it.

Butter and cheese offered for premiums, must be deposited on or before 8 o'clock, on the morning of the day of exhibition, at Messrs. Lull & Gilbert's store, in Louisville, and there left for examination, under a private mark; and a certificate filed with Jonathan M. Lull, as secretary of the society, signed by the maker, and containing the private mark put on the articles, with particulars as to the time it was made, the number of cows kept, and if any other material besides salt, and what salt, was used in its manufacture, with such other information as may be useful.

The treasurer and secretary of the society will attend at Mr. Bergan's hotel, for the purpose of receiving subscriptions and statements from exhibitors, likewise to give certificates of entry, &c. &c., and in the afternoon to pay premiums.

The reports of the committees will be made, and their awards of premiums announced, in the afternoon, by the president of the society, at Mr. Bergan's hotel, where a dinner will be provided for the members of the society and their friends.

Those who have agricultural implements that may tend to abridge or facilitate the farmer's labor, will render the community a service by their exhibition; and those having fine animals of any description, though not eligible to take a premium, are respectfully solicited to exhibit them, as it is by comparison only that the judgment is formed and corrected; and the board is well aware that the county of Otsego contains individual animals of the very purest breed, not only of the *improved* short-horns, but of the Durhams, the Longhorns and Devon grades; also sheep of every variety, from the purest and most silky woolled Saxon, to the large, beautiful, long woolled Leicesters, producing the material from which the finest camblets and other worsted fabrics are manufactured.

The board of managers also invite the attention of those who may wish to improve their stock by purchases of the best and purest breeds, as such will unquestionably be on the ground and for sale.

By order of the board of managers.

FRANCIS ROTCH, *Cor. Sec.*

Louisville, Butternuts, Otsego Co., N. Y., June 10, 1836.

EXTRACTS.

THOROUGH DRAINING—INDICATIONS AND EFFECTS, IN THE GROWING CROP, OF STAGNANT SURFACE WATER—INFLUENCE OF SUBSOIL—EFFECTS OF THOROUGH DRAINING ON CULTIVATED CROPS—MODE OF THOROUGH DRAINING.

(From the Edinburgh Quarterly Journal of Agriculture.)

Thorough draining may be defined as *that kind which removes surface water from subsoils, by placing shallow, though substantially constructed drains in parallel lines, at such distances and in such a position, as thoroughly to dry the soil without injury to their structure.* According to the spirit of this definition, thorough draining admits of drains being filled with tiles, stones, or other appropriate materials, provided they are substantially constructed; it admits forms of drains of any shape, whether wedge-shaped or otherwise, provided they are placed in parallel lines and not cut too deep; it admits the placing of drains in any position, whether up and down the slope, or along its face in a diagonal direction, provided the inclination given prevents the destruction of their structure by the force of running water; and it admits the running of drains in any place, and at any distance from each other, provided they be so near to one another that the water can have easy access to them from every direction.—

Thorough draining acts as an absorbent like a sponge, presenting in all directions numerous channels to imbibe the superabundant moisture. No sooner does rain or melted snow percolate through the ploughed soil, than thorough draining offers a safe conductor to receive it and convey it away.

But another indispensable inquiry remains to be instituted, before we can clearly arrive at the final conclusion, that draining is the speediest means of fertilizing the soil. We have to ascertain that state of the soil in which draining shows its greatest efficacy as a fertilizer of soil. Most people accustomed to field labor imagine that they can easily indicate the state of the soil which requires draining, and the exact places in which drains should be formed. Many egregious mistakes have thus been committed in draining, and particularly in thorough draining. Any one is competent to observe where a spring bursts out to the day, and where the soil is partially dark coloured when ploughed, and where it is in a pulpy state at the wettest place; and any one can detect the well-eye bursting out its waters, near the bottom of a bank of natural pasture, surrounded with a verdant margin, and originating a train of those plants which luxuriate most vigorously in spring water, such as the fiorin, some species of poa, and the water-cress; but a palpable error would be committed, were any one ignorant of their nature, to attempt to cut off the sources of such springs. To accomplish that effectually, requires a previous knowledge of the nature of the alluvial and harder rocks, among which springs generally originate, and especially a competent knowledge of those in the particular locality. Although springs clearly indicate an obvious necessity for draining, which, if effectually executed, will always recompense the cost, stagnant water under arable soil is not so easily detected. The evidence of its existence is not so much pathognomonic as symptomatic, to use still the phraseology of medicine. The crops commonly grown are most correctly symptomatic of stagnant water.—Through its baneful influence the straw of white crops is short, small, fine, soft, easily broken from shortness, not brittleness of fibre, and stained as if with rain. The grain is small, and although at times well enough filled, has always a puny and palish appearance. Cutting grass is also small, fine, not long, and much inclined to abundance of flowers, and of course to seed, which are both small. The hay is always light for its bulk. Pasture grass is short, stiff, not thick set nor fine, and of a bluish grass green colour. It does not fatten live-stock well, particularly in tallow. Sheep thrive worse than cattle on it, their wool being light, and to appearance dead. Little milk and butter are derived from it. Turnips are small, hard and fibrous, and their leaves grow nearly erect, and are often margined with red. Potatoes are small in the stem and short, the tubers being small, watery when boiled, and the crop never very abundant. The symptoms from the land itself are, that it is apt to get foul with couch grass, which, when hand-picked, cannot be gathered free from soil, but is easily broken, fine and very adhesive to balls of earth. This weed renders the ploughing and harrowing of such land, particularly the harrowing, very tedious, and when both operations are repeated till the soil is free of it, the soil by that time becomes too much pulverized and deaf. The furrow-slices of land rendered thus deaf cannot stand up on their own feet, but soon clap down, become obliterated, and assume a wasted and hungry appearance. The dead roots of stubble, when ploughed after harvest, do not adhere firmly to the soil, but are easily rubbed out by the coulter and mould-board, and carried forward in bundles before the coulter. The symptoms attendant on the application of extraneous matter to land in that state are, that farm-yard dung, whether fermented or fresh, does not quickly incorporate with the soil. It remains in an inert state, lumpy, and moulders away into a blackened mass. Bone-dust does not quickly incorporate with the land, therefore does not quickly decompose in it, nor does it ever impart that greasiness to the soil which is its valuable characteristic as a manure. Lime does not quickly mix with it, losing its caustic properties, and soon becoming like mortar, and of course *effete*. Hedges which are planted in it become stinted in growth, and covered with moss, and most of the kinds of forest trees are soon in the same plight. Plants indicative of dry soil never grow in it, but give place to those which thrive in moist earth, such as the horse-tail, dead-nettle, sprats, some species of the rush, thistle, &c. Besides these obvious symptoms, there are others more latent, which are only obvious after having been detected; such as the ground when felt in walking over or being trodden on. It is difficult to describe this sense of feeling by words. The ground feels less firm, more likely to slip under the foot by the arable portion sinking into or sliding upon the subsoil, and in some cases it will sound hollow on being jumped on. In such suspicious circumstances we have frequently seen drains release large quantities of stagnant water which had lain concealed and encased among beds of impervious clay. In short, when we come to examine thus minutely into the state of land, we will find a very small portion of it indeed that can naturally claim exemption from draining.

In considering this enumeration of evils, and the catalogue is a long one, it may be observed that most, if not all of them, are symptomatic of bad land, as well as that under the influence of stagnant surface water. The observation is quite correct. But it should be borne in mind that stagnant water turns good land into bad, and that bad land is so chiefly because it is permitted to remain injured by stagnant water. It is true that all sorts of land are not alike in their nature, nor alike in quality—some are naturally good, and some naturally bad—but in all the natural classes of soils which are easily affected by draining, and they are the most numerous, the good of them are good, because they are naturally drained, being composed of, and resting on pervious materials; and the bad are bad, because they rest on retentive subsoils; and the more retentive subsoils are, the the worse the soils which rest upon them. Soils, therefore, are not naturally so dissimilar in quality for the purposes of husbandry, as that they are rendered so by being naturally placed on dissimilar subsoils. Land, if of considerable depth, may, however, be very good, although it rest on a retentive subsoil; but the good soil below the reach of the plough forms, in that case, the subsoil, and not the retentive matter, which may be at a considerable distance below it. The best natural soil would become bad, if placed on a retentive subsoil. It is the nature of the subsoil, therefore, which stamps the quality on the soil, for the purposes of agriculture, for the natural quality of soil is, in all events, much enhanced by the art of husbandry. Pure carse clays may seem to form an exception to these remarks, but attention to their nature, as they are really affected by stagnant water, will show that even they form no exception. Pure carse clay soils are generally formed in deep beds or in masses several feet in thickness, the pure clay itself forming the subsoil to the pure clay which is subjected to the plough. When water finds its way through arable soil, it descends to the subsoil, which, when impervious, it cannot penetrate, but slides down both sides of the ridges to the open furrows. But the arable part of clay soil can only be penetrated by water immediately after it has been ploughed; for soon after ploughing it consolidates, and the water then can only run along the *impervious surface* to the furrows; so that pure clay soils can never be said to stand over stagnant water: and should drains be placed in the furrows and open cuts formed in the hollows elsewhere on the surface, no surface water could long remain on them. Could a rounded form be given to the subsoil of the ridge upon which the sole of the plough moves, and that subsoil rendered smooth by the lower edge of the furrow slice, being cut clean with the near approximation of the points of the coulter and sock, the surface water that at any time might reach the subsoil, would pass easily off to the drains in the furrows.

Having contemplated the evils arising from water becoming stagnant under arable soil, let us now contemplate the reverse of the picture, the pleasing and valuable effects of draining. The existence of moisture being most easily known by its effects on the crops which are commonly grown on the fields, the benefits of draining are also first exhibited by them. 'The straw of white crops on thoroughly drained land shoots up strongly from a vigorous braird, is thick, long, and, at the same time, so stiff, that the crop is not easily lodged. The grain is plump, large, bright coloured and thin skinned. The crop ripens uniformly, is bulky and prolific, is more quickly won for stacking after being cut, is more easily thrashed out, winnowed and cleaned, and produces fewer small and light grains. The straw, also, makes better fodder for live-stock. Cutting clovers become strong, rank, long, juicy, and the flowers, though fewer, very large and bright of colour.' The hay is heavy for its bulk. Pasture grass stools out in every direction, covering the earth with a thick mass of rank vegetation, which produces fat and milk of the finest quality. Turnips get large, plump as if fully grown, juicy, with the skin smooth and oily. Potatoes are long, and strong in the stem, with tubers large, with skins easily peeled off, and mealy when boiled. Stock of every kind thrive, become gentle tempered, and fatten easily, particularly sheep, which improve both in mutton and wool. Land is less occupied with weeds, the luxuriance of the sown crops choking their growth. Summer fallow is then easily cleaned, when practised on strong soils, and much less work is required to put the land in proper trim for the manure and seed. All manures quickly incorporate with soil when drained.—These all are symptoms of good land, observed on the same soil which formerly exhibited symptoms of bad; thus proving that by draining is derived the same results from bad land, (that is, from the natural surface, whatever may be its component parts, when it rests on a subsoil, naturally so retentive as to detain the surface water which reaches it, until it stagnates,) that are derived from good, (that is from the natural surface, whatever may be its component parts, when it rests on a subsoil naturally pervious to surface water.) Can facts stronger than these be adduced to recommend the adoption of draining? Can statements stronger than these be produced on any subject, to make out a clearer case in its favor, than have been now produced in favor of draining, as a fertilizer of the soil? To hesitate, therefore, to drain land, is willingly to hesitate to confer benefits on one's self. None need urge the plea of inability from want of capital, to undertake even the expensive operation of draining, since its effects are immediate as well as compensative. Every one can do a little to begin with; and every year thereafter, the draining, however small, will increase the means proportionately to extend similar operations in future. Besides, let a farmer think of the happiness which he is daily storing up for himself, in the contemplation of the enlargement of his means, from the judicious application of his skill and industry on that soil which is the source of his existence.

ON THE USE OF LIME AS A MANURE.—By M. Puvis.

Translated for the Farmers' Register from the *Annales de l'Agriculture Francaise*, of 1835.—*(Continued from page 55.)*

OF SOILS SUITABLE FOR LIMING.

6. Lime, as has been said before, suits such soils as do not contain it already. To distinguish these soils from others, chemical analysis is, without doubt, the surest means; but it offers often too many difficulties, and lime may be met with in a soil in proportion great enough to exert its power on vegetation, without producing effervescence with acids. But visible characters may furnish indications almost certain. The soils where the cow wheat, *(melampyre,)* rest-harrow, *(l'ononis ou arrete-bœuf,)* thistles, colt's-foot, *(tussilage,)* and red poppy, spring spontaneously—which produce well in wheat, legumes, (or plants of the pea kind,) and especially sainfoin—where the chestnut succeeds badly—which shows but little of dog's-tooth, *(chiendent,)* volunteer grasses, or common weeds, *(grammines adventices,)* except of the small leguminous kinds—soils which, after being dry, crumble with the first rain—all these are almost certainly calcareous, have no need of lime, nor its compounds,* and would feel from their use rather ill than good effects.

On the contrary, all soils composed of the moulderings *(debris,)* of granite or schistus, almost all sandy soils; those which are moist and cold of the immense argilo-silicious table lands *(plateaux argillo-silicieux,)* which separate the basins of great rivers; those where rushes, *(petit ajonc,)* the heath, *les petits carex blancs*, the whitish moss spring spontaneously—almost all the soils infested with *avoine a chapelets*, with dog's-tooth, with bent grass, *(agrostis,)* red sorrel, and the little fever-few—that soil where, unless so clayey as to offer great difficulty to cultivation, only rye, potatoes, and buckwheat, can be made to grow, and where sainfoin and the greater part of the crops of commerce cannot succeed—where, however, trees of all descriptions, and especially of the resinous kinds, the wood-pine, the sea-pine, the larch, the northern pine, and the chestnut, thrive better than in the best land—all these soils are without the calcareous principle, and all the improving manures in which it is found, would give to these the qualities of, and nourish the growths peculiar to, calcareous soils.

---

* Though both the truth and the usefulness of this passage in general, are admitted, yet it is incorrect in the position that none of the "compounds of lime" would be advantageously employed on calcareous soils. On the contrary, the sulphate of lime, (gypsum,) the most important compound as a manure, next to the carbonate, is most effective where the land has lime in some other form: and, indeed, (as has been maintained elsewhere,) it seems generally inert and useless on soils very deficient in lime.—*Essay on Calcareous Manures, pp.* 50, 92.

But there, more than elsewhere, it is especially necessary to avoid too much haste. Liming upon a large scale ought not to be done, until after having succeeded in small experiments on many different parts of the ground designed to be improved.

EXTENT OF SURFACE TO WHICH LIME IS SUITABLE.

7. A great proportion of the soil of France does not contain the calcareous principle. The country of primitive formation—the mountains of which the rock is not calcareous—many soils even, of which the subsoils enclose calcareous formations—the great and last alluvion which has covered the surface, and which still composes it wherever the return waters have not carried it off with them—also extensive surfaces, in the composition of which the calcareous principle had not entered, except in small proportions, and which small amount has been worn out by the successions of vegetation—all these kinds of soil, which comprise at least three-fourths of the surface of France, to be fertilized, demand calcareous manures. If it is admitted that one-third of all this space has already received aid from lime, marl, ashes of wood or of peat, of bones, burnt or pounded, there will still remain the half of France to be improved by such means; an immense task, doubtless—but of which the results will be still more prodigious, since it will cause the products of all this great space to be increased one-half, or more.

OF THE VARIOUS MODES OF APPLYING LIME TO THE SOIL.

8. Three principal modes of proceeding are in use for applying lime. The first is the most simple, and is the most general wherever lime is obtained cheaply, and where culture is but little advanced in perfection, and manual labor is dear. This consists in putting the lime [the burned limestone] immediately on the ground, in little heaps at 20 feet average distance, and each heap containing, according to the rate of liming, from a cubic foot of the stone, to half that quantity. When the lime has been slacked by exposure to the air, and has fallen into powder, it is spread on the surface so as to be equally divided.

9. The second mode differs from the first in this respect: the heaps of stone are covered with a coat of earth, about six inches thick, according to the size of the heap, and which is equal to five or six times the bulk of the lime.—When the lime begins to swell, by slaking, the cracks and openings in the heap, are filled with earth: and when the lime is reduced to powder, each heap is worked over, so as to mix thoroughly the lime and the earth. If nothing hurries the labor, this last operation is repeated at the end of fifteen days—and then, after waiting two weeks more, the mixture is spread over the soil.

10. The third process, which is adopted where culture is more perfect, where lime is dear, and which combines all the advantages of liming, without offering any of their inconveniences, consists in making compost heaps of lime and earth or mould. For this, there is first made a bed of earth, mould or turf, of a foot or thereabouts, in thickness. The clods are chopped down, and there is spread over a layer of unslaked lime, of a hectolitre[*] for the 20 cubic feet, or a ton to the 45 cubic feet of earth. Upon this lime, there is placed another layer of earth, equal in thickness to the first; then a second layer of lime; and then the heap is finished by a third layer of earth. If the earth is moist, and the lime recently burned, eight or ten days will suffice to slake it completely. Then the heap is cut down and well mixed—and this operation is repeated afterwards before using the manure, which is delayed as long as possible, because the power of the effect on the soil is increased with the age of the compost; and especially if it has been made with the earth containing much vegetable mould. This method is the one most used in Belgium and Flanders: it is becoming almost the exclusive practice in Normandy: it is the only practice, and followed with the greatest success in La Sarthe. Lime in compost is never injurious to the soil. It carries with it the surplus of alimentary manure which the surplus of product demands for its sustenance. Light soils, sandy or gravelly, are not tired by repetitions of this compost. No country, nor author, charges lime, used in this state, with having been injurious to the soil. In short, this means seems to us the most sure, the most useful, and the least expensive mode of applying lime as manure.

11. The reduction of burnt lime to powder by means of a momentary immersion in water, in handle baskets, serves much to hasten the slaking, whether the lime is to be applied immediately to the soil, or in compost heaps—some hours in this manner sufficing, in place of waiting two weeks; however, the effect of lime in this state, may well be different, as we have then the hydrate of lime, and less of the carbonate of caustic lime.[†] If great rains follow, this process is not without its inconveniences, because then the lime, which is already saturated with water, is more easily brought to the state of mortar, which ought to be avoided more than every other injury to the manure.

The reduction of burnt limestone to powder, whether it be spontaneous or by immersion, produces in the compost, a bulk greater by one-half or more, than that of the stone—10 cubic feet, producing 15—or a ton, 10 cubic feet. This increase is not uniform with all kinds of lime; it is greater with the rich *(grasses,)* and less with the poor varieties.

LIMING, AS PRACTISED IN DIFFERENT COUNTRIES.—IN THE DEPARTMENT OF AIN.

12. The application of lime in Ain dates fifty years back. At the present time, the soil which has been limed, is still more productive than the neighboring, not limed. Nevertheless, liming is but beginning to extend, while marling, which was begun fifteen years later, has already covered many thousands of hectares. This is because marling is an operation within the means of poor cultivators, being accomplished by labor alone; while liming requires considerable advances, especially in this country, where lime is dear, and the dose given is heavy.

The dressings vary in quantity, from 60 to 100 hectolitres the hectare, according to the nature of the ground, and often according to the caprice of the cultivators. Although these limings have not been made with all the care and economy that was desirable, they have been very efficacious when the soil has been sufficiently drained. The following tables, extracted from the registers of three contiguous domains, belonging to M. Armand, three years before, and nine years during the progress of liming, give us the means of appreciating the results. The quantities of seed and of crops, are calculated in double decalitres, or in measures or fifths of hectolitres.

Table of the product of the domain of La Croisette.

YEARS.	RYE.		WHEAT.	
	Seed.	Product.	Seed.	Product.
1822	110	600	24	146
1823	110	764	24	136
1824	110	744	24	156
1825	107	406	27	251
1826	106	576	28	210
1827	100	504	30	249
1828	90	634	36	391
1829	82	538	48	309
1830	60	307	60	459
1831	78	350	40	417
1832	55	478	68	816
1833	61	529	52	545

Table of the product of the domain of Miseriat.

YEARS.	RYE.		WHEAT.	
	Seed.	Product.	Seed.	Product.
1822	120	487	16	100
1823	120	708	16	103
1824	120	644	18	84
1825	112	504	28	228
1826	120	677	20	115
1827	115	594	20	162
1828	118	726	40	328
1829	104	566	41	277
1830	79	298	71	477
1831	91	416	43	326
1832	79	411	75	786
1833	76	616	48	351

Table of the product of the domaine of La Baronne.

YEARS.	RYE.		WHEAT.	
	Seed.	Product.	Seed.	Product.
1822	110	505	22	180
1823	110	643	22	138
1824	110	662	24	149
1825	102	398	32	252
1826	110	612	32	187
1827	107	546	34	204
1828	98	696	38	343
1829	84	608	40	268
1830	91	389	59	374
1831	92	411	40	295
1832	70	512	80	649
1833	75	511	51	471

The application of 3,000 hectolitres, [8,490 bushels,] of lime, of the value of 6,000 francs, [$1,116,] upon 32 hectares, [80 acres,] of ground, made successively during nine years, has then more than doubled the crops of winter grain, the seed being deducted. The other crops of the farms have received a proportional increase; and the revenue of the proprietor, in doubling, has annually increased two-thirds more than the amount of the sum expended in the purchase of lime. Still, there is not yet half the arable land limed, since of 66 hectares, only 32 have received this improvement.

The products of 1834 are still greater than those of 1833. But these are sufficient to prove the importance and utility of applying lime to suitable soils.

Many other examples sustain these results; and from them all it appears, that the wheat seedings are increased from double to triple—that the rye lands, from bringing four to five [to one in seed,] in rye, are able to bring six to eight in wheat—and that other products are increased in proportion. The melioration then is, relatively, much greater upon bad ground than upon good, since it is two-thirds and more on the wheat land, and on the rye lands the crop is increased in value three-fold.

(From Chaptal's Chemistry applied to Agriculture.)

ON THE CULTIVATION OF WOAD.

It appears that the *Isatis tinctoria* may be made to flourish everywhere excepting in moist lands; corn-fields and ground which is prepared for cultivation are adapted to its growth; a good crop may be procured upon alluvial soils, but strong soils are preferable, provided they are not too clayey.

The ground in which the seed of the *isatis* is to be sown must be ploughed three times, not only that the ground may be thoroughly softened and divided, but that all the weeds which would injure the growth of the plant, and increase the expense of weeding, may be destroyed. The different ploughings should be performed at intervals of a month or three weeks from each other. In strong lands and those which are disposed to retain too much water, deeper furrows may be traced at certain spaces, so as to form small drains by which the water that would injure the plant is drawn off. The nature of the manure which is employed in the culture of woad, exerts a powerful influence, not only upon the vegetation of the plant, but upon the quantity and quality of its coloring principle.

The manures which consist of well decomposed animal or vegetable substances are the best, and for this reason night soil, the dung of sheep and doves, the decayed fragments of wool and silk, and the chrysalises of the silk worm, are preferred to any other manures.

Those substances that act as stimulants to vegetation, such as lime, plaster, marine salt, poudrette, mortar-rubbish, ashes, &c. favor the growth of the plant without affecting the coloring principle.

---

[*] The hectolitre contains 6102.8 English cubic inches, or is equal to 2.82, (or about 2.6-7) Winchester bushels. Therefore, the hectolitre is rather more in proportion to the hectare, than our bushel is to the acre. The decalitre is the tenth of a hectolitre, and of course the "double decalitre" is the fifth.—*Translator.*

[†] An incorrect expression, certainly, but literally translated.—*Tr.*

When land has been dressed with barn-yard manure, it may be made to yield a crop of grain or maize, and afterwards be sown with woad.

The season for sowing the *isatis* varies much in different parts of Europe. In Italy, Corsica, Tuscany, &c. it is sown in the course of the month of November. As it does not receive injury from the cold, it grows during the winter, and in March is sufficiently strong to overcome the weeds which usually make their appearance at that season. From the circumstance of its growing through the winter, it may be rendered a very important article of nourishment for horned cattle.

In the south of France, woad is sown in March, and in England in February. In certain other countries it is sown after the corn harvests; but in this case, a season favorable to vegetation is required, and the practice of sowing at that time can only be followed advantageously in those climates where rains are certain, so that the cultivator may be able to gather two or three harvests of leaves before winter. His fields of woad will afford him pastures for his cattle during the frosts, and he is secure at the return of summer of an abundant harvest of leaves.

The seed of the *isatis* should be soaked in water previously to sowing, as germination will be hastened by it. The seed is sown broadcast, in the same quantity as wheat, and harrowed in. The blade shows itself at the end of ten or twelve days. As soon as the plants have thrown out five or six leaves, they must be carefully weeded, and this must be repeated several times before gathering the leaves. The design of the weeding is to remove all strange plants that may spring up in the same soil, especially the roots of bastard woad, (bourdaigne,) the mixture of which injures the coloring matter of the pure *isatis;* and to thin the rows of stalks, that those remaining may have more room to grow.

The *isatis*, like other plants, has its diseases and its enemies. The leaves are frequently seen covered with yellow spots, which turn brown and acquire the appearance of rust; this seems to be occasioned by the sudden changes which sometimes occur in the atmosphere; the rays of a hot sun darting immediately upon plants after a mist or rain, often produces a rustiness of the leaves and stalks.

It often happens, that, in consequence of a great degree of heat acompanied by drought, the plants are not fully developed; the leaves acquire not more than one-third of their usual size, yet exhibit all the other characteristics of perfect maturity; the harvest, however, is lost, for if the leaves be cut in that imperfect state, the plants either perish or languish without yielding any product.

The *isatis* is not exempt from the ravages of insects; there is one called the flea, which often destroys the first and second harvests of leaves; another, known by the name of the louse, attacks the last leaves, but does less injury than the other, because the first harvests are the most important. The snail and the cabbage-worm likewise commit some depredations upon woad.

THOUGHTS ON THE SELECTION, BREEDING, AND FATTENING FOR MARKET, OF NEAT OR HORNED CATTLE.

(*Extracted from a Communication in the New-York Farmer.*)

I have said, and I repeat it, with a view of impressing what I here advance, on the minds of husbandmen, that the interest of the drovers is amalgamated with that of the butchers, for whom the former buy, but differs widely from that of the farmer or feeder, as to the profits to be derived from cattle, when bought and sold by the weight, after being slaughtered, a circumstance very imperfectly understood by farmers, which I shall explain.

In buying and selling by weight, there are two modes practised, as to weighing; the one, that of *sinking the offal*, as it is termed, that is, weighing only the *four quarters, or carcase, when dressed,* without taking into account the weight of the *hide and tallow.*

The other mode is termed *weighing all round,* that is, estimating in the aggregate the weight of *beef, hide and tallow.*

The former mode (of sinking the offal,) is pursued in the city of New-York, and some other large cities; the latter method is practised in country towns, and in the country generally.

The hide and tallow are equal in weight to 20 per cent, or one-fifth of the whole weight of the animal after being slaughtered and dressed, when well fattened, but if very fat, somewhat more, and is sometimes absurdly called the *fifth quarter.*

It is to be observed, that the New-York butcher pays only for the weight of the *four quarters;* that is, the *beef, or carcase, when dressed*, and *pockets* the hide and tallow as clear profit of 20 per cent, even should he retail out the beef on his stall for the same sum that he paid, but he always has a further profit on it. Consequently, *the lighter the beef weighs*, for which *he has to pay*, and the *heavier the tallow and hide*, for which *he pays nothing*, the *greater his profits*, and the *less* those of the feeder.

It is an established fact, well understood by medical men, as also by experienced and scientific feeders, that there is a certain pitch, beyond which the process of fattening cannot be carried, inasmuch as that the system or constitution of the animal, or organs of life, will admit of only a given quantity of fat or suet, whether deposited in the intestines, or mixed throughout the meat; consequently, the more the beef or flesh is interlarded with fat, the less remains to be attached to the intestines, or to add to the weight of what is termed the caul; and vice versa.

It is beyond dispute, that those cattle whose flesh is intermixed, marble-like, with fat throughout, weigh heaviest when dressed in proportion to the dimensions of the carcase, the beef, owing to that circumstance, being full of nutritious matter; on the other hand, those whose flesh is void of this beautiful red and white, variegated mixture of fat and lean, whose meat cuts up red, and sometimes what is worse, of a dark color, resembling horse-flesh, technically called lyrey, weigh lighter in the carcase, or quarters when dressed, although they may have a larger proportionate weight of caul or gut-fat, or rough tallow, in consequence of the fat being more externally and abstractedly lodged in the intestines.

We will suppose that two oxen, when put up to fatten, weighed 800 pounds each, beef, hide and tallow included; the one, of that breed which was disposed to mix or marble the flesh throughout with fat—the other, one of those whose flesh did not become thus variegated, but continued, as before, red, being merely coated on the out and inside with a portion of fat. These two beasts shall be stall-fed for six months, each having daily the same allowance of food in quantity, kind and quality, and in all respects be treated with the same attention. At the expiration of the six months, they are sold to a New-York butcher at, say $10 per cwt. slaughtered and weighed. Which do you suppose, reader, will give the greatest return to the feeder, for the given quantity of provender which each has consumed? The former, unquestionably—he will weigh much heavier in the beef, that is, the four quarters when dressed, he will have a less ratio of gut fat or rough tallow, and his hide will be thinner, and consequently lighter, than his competitor, he will probably have arrived at the gross weight of 1,300 lbs.—of which aggregate, his beef, when dressed, will weigh 1,000 lbs.; rough tallow or gut fat 200 lbs., hide 100 lbs. The other bullock, we will venture to say, will not in toto, come up to 1,200 lbs., in the following proportions: beef, when dressed, about 850 lbs.; rough tallow 200 lbs.; hide 110 lbs.; making a total of 1,160 lbs. Now the city butcher, who pays only for the beef, gets, as it were, a clear profit of 200 lbs. of tallow, and 100 of hide, upon his payment in the one case of $100—whereas, in the other he obtains the like quantity of tallow with 20 lbs. more of hide, for only $85. It is true, he gets in the first case 100 lbs. the most beef, but this is by no means equal to $15—the difference in the cost of the two animals, equal to 15 per cent, which, at the same time, is the precise difference to the feeder, in fattening the one or the other of these distinct breeds. But suppose the feeder, in place of selling to a city butcher, is situate remote from any large town, and disposes of his cattle for packing or barrelling, where the custom is to weigh "all round," as it is termed, taking into the estimate the gross weight of beef, hide and tallow? The same argument here prevails, the aggregate weight of the ox which intermixes the flesh and suet being the greatest. This position may appear to rest upon naked assertion, but it is a theory well known to all cattle feeders of experience, that animals of this last description fatten most quickly and come to the greatest weight upon a given quantity of food. Let the breeder and feeder of cattle bear in mind, that all live stock are mere machines, made use of by the husbandman to convert provender into money, consequently that which produces the largest sum in return for a given quantity of provender expended, is the best. Here, then, is the basis upon which the cattle dealer or farmer is to rest his choice.

There are certain rules to be adhered to in this branch of the agriculturist's pursuits, without a strict observance of which, he will waste his time and employ his capital to little purpose, at all events, will never bring his stock to that excellence so much desired, and so easily to be attained. Numbers are not so much to be sought after, as a well chosen stock, proportioned to the means of support; a few, well attended to, will afford a surer, as well as a greater profit, than a large number worse fed, and occasionally neglected; for it is a maxim to be strictly observed, that condition gained, ought never to be lost, or even allowed in the least to recede.

In making selection of a breeding stock, there are four qualifications to be minutely attended to; these may be considered the four points of perfection: 1st. Beauty of form; 2d. Utility of form; 3d. Texture or grain of the flesh; 4th. The fattening quality or propensity to become fat quickly, and at an early age.

By beauty of form is meant that symmetry or due proportion throughout the frame which constitutes strength, agility and facility of movement, which, though much to be desired, is not to be sought after, to the exclusion or interference with what is termed *utility of form*, which the care and discernment of eminent breeders have constituted, by improving the principal parts, or prime cuts of the carcase, when offered for sale in the butcher's stall, both as to quantity and quality, and on the same ratio decreasing the course and offal parts.

Texture or grain of the flesh, is the difference between coarse open, or lyrey, or black flesh, and fine close grained meat, of a lively bright red color.

The fattening quality, and the disposition to become quickly fat, and at an early age, is an indispensable requisite to the agriculturist; upon this qualification his loss or gain, in a great measure, depends; and this so essentially requisite, is innate.

* * * * *

The writer then sums up the good qualities of the improved short-horns, in the following brief way:—

"The short-horned breed have been brought to a degree of perfection, surpassing in beauty, utility and profit, all other cattle of the present day—yielding a larger supply of milk, feeding to greater weight, having a propensity to become fat at an early age, affording fine grained meat, beautifully intermixed with fat throughout, having thin hides, carrying their greatest weight in the hind quarters, and the choice pieces when cut up, yielding a just proportion of tallow, having small bones, with fine clean heads and light necks, void of that great coarse gullet and dew-lap generally the property of heavy cattle; affording a less proportion of coarse meat of little value when exposed for sale on the butcher's stall, and less offal, than any other breed."

SMOKY CHIMNEYS.

To all who are acquainted with the nature and properties of elastic fluids it must be obvious, that the whole mystery of curing smoky chimneys, consists in finding out and removing the accidental causes which prevent the heated smoke from being forced up the chimney by the pressure of the cool or heavier air of the room. These causes are various; but that which will be found most commonly to operate is, the bad construction of the chimney *in the neighborhood of the fireplace.* "The great fault," says Count Rumford, "of all the open fireplaces now in common use is, that they are much too large, or rather it is, *the throat of the chimney*, or the lower part of its open canal, in the neighborhood of the mantle, and immediately over the fire, which is too large."—The following is a condensed view of some of the rules given on this subject, by this ingenious practical philosopher, and which are founded on the principles of science, and on numerous experiments:—1. The *throat* of the chimney should be perpendicularly over *the fire;* as the smoke and hot vapor which rise from a fire naturally tend *upwards.* By the *throat* of a chimney is meant the lower extremity of its canal, where it unites with the upper part of its open fireplace. 2. The nearer the throat of a chimney is to the fire, the stronger will be its *draught,* and the less danger of its smoking; since smoke rises in consequence of its rarefaction by heat, and the heat is greater nearer the fire than at a greater distance from it. But the draught of a chimney may be too strong, so as to consume the fuel too rapidly; and, therefore, a due medium must be fixed upon according to circumstances. 3. That *four inches* is the proper width to be given to the throat of a chimney, reckoning across from the top of the breast of the chimney, or the inside of the mantle to the back of the chimney; and even in large halls, where great fires are kept up, this width should never be increased beyond 4½ or 5 inches. 4. The width given to the back of the chimney should be about *one-third* of the width of the opening of the fireplace in front. In a room of a middling size, *thirteen inches* is a good size for the width of the back, and 3 times 13 or 39 inches for the width of the opening of the fireplace in front. 5. The angle made by the back of the fireplace and the sides of it, or covings, should be 135 degrees, which is the best position they can have for throwing heat into the room. 6. The back of the chimney should always be built *perfectly upright.* 7. Where the throat of the chimney has an end, that is to say, where it enters into the lower part of the open canal of the chimney, *there* the three walls which form the two covings and the back of the fireplace should *all end abruptly,* without any slope, which will render it more difficult for any wind from above to force its way through the narrow passage of the throat of the chimney. The back and covings should rise 5 or 6 inches higher than the breast of the chimney. 8. The current of air which, passing under the mantle, gets into the chimney, should be made *gradually to bend its course upwards:* by which means it will unite *quietly* with the ascending current of smoke. This is effected with the greatest ease and certainty, merely by *rounding off* the breast of the chimney, or back part of the mantle, instead of leaving it flat or full of holes and corners. *Fig.* 28 shows the section of a chimney on the common construction, in which *d e* is the throat. *Fig.* 29 shows a section of the same chimney, altered and improved, in which *d i* is the reduced throat, four inches in the direction of *d i,* and thirteen inches in a line parallel to the mantle.—*Dick.*

Fig. 28.

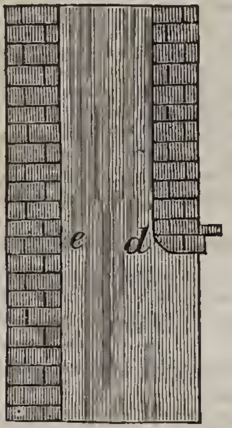
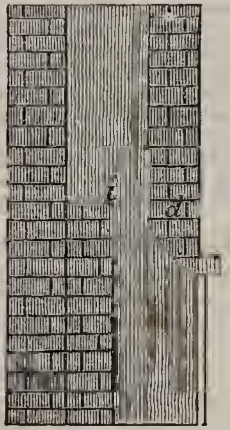


Fig. 29.



THE SHEEP.—(*Continued from page* 68.)

PERIODICAL DECIDENCE OF WOOL AND HAIR.

Wool is distinguished from hair by the manner in which it separates from the animal, and is renewed. Most of those animals whose covering is hair, renew their coat at least once in the year: in the horse it is shed twice—in the spring and the autumn. This is evident enough in the colt, and in the farmer's horse, whose coat is often exposed, almost as much as in a state of nature, to the influence and occasional inclemency of the seasons; but when they are domesticated and stabled, the process is far from being regularly conducted; it appears to be in a manner suspended, but it is, in fact, going on all the year round. In the deer it has its regular period; less so in the ox, and least of all in the dog: but in all of them, when the pulpy substance at the root of the hair ceases to be supplied, and, losing its support, the hair is detached and falls off, the different fibres separate, as it were, one by one. The old hair and the new remain together for a season, and no part of the skin is left at any time bare. The period of the reproduction of the hair is very often connected with disease, and almost invariably so with loss of power. The human being, however, is not, like these quadrupeds, subject to an annual renewal of the covering of the skin; the hair once produced, continues to grow for many a year, perhaps for life, by prolongation from the root.

There is considerable difficulty respecting this change of external covering in the sheep. It has been commonly believed that there is a periodical moulting, or separation from the old fleece from that which is growing underneath; and there is no doubt, that the greater part or the whole of the fleece of the more neglected breeds, begins about the commencement of summer, to detach itself from the pelt; and much of it would be lost if its separation were not anticipated by the application of the shears. On the other hand, the wool of the lamb that was dropped in the winter or spring, shows no disposition to separate, but continues to grow; and the observation of this has introduced a practice, the advantage of which will hereafter be considered, of leaving the hogget wool, for the first sixteen or eighteen months, to acquire additional length of staple. The Merino sheep affords a singular proof how easily the annual change of the fleece—if annual change there is—may be suspended in the domesticated state of that animal. Lord Western has retained the wool of the Merino, without the slightest disposition to separate, during three years. The experiment was also tried at Rambouillet, and the fleece remained on firm and healthy during five years. It had attained its utmost growth at the fourth year, when it was 13 inches long; but it had no disposition to separate from the skin, and probably it would not have fallen off during the life of the sheep. There were not merely a few cases of this, but the experiment succeeded in every sheep on which it was tried.

THE FORM OF THE FIBRE.

The fibre of the wool, having penetrated the skin and escaped from the yolk, is of a circular form, (varying in diameter in different breeds, and in different parts of the same fleece,) generally larger towards the extremity and also towards the root, and in some instances very considerably so.

The filaments of white wool, when cleaned from grease, are semi-transparent; their surface in some places is beautifully polished, in others curiously encrusted, and they reflect the rays of light in a very pleasing manner. When viewed by the aid of a powerful achromatic microscope, the central part of the fibre has a singularly glittering appearance. Very irregularly placed minuter filaments are seen branching from the main trunk, like boughs from the principal stem. This exterior polish varies much in different wools, and in wools from the same breed of sheep at different times. When the animal is in good condition and the fleece healthy, the appearance of the fibre is really brilliant; but when the sheep has been half-starved, the wool seems to have sympathized with the state of the constitution, and either a wan, pale light, or sometimes scarcely any, is reflected.

If any great and injudicious alteration has taken place in the management of the sheep during any period of the year, although the fibre may continue to preserve a portion of its brilliancy, a very considerable difference in its appearance will be immediately detected. Some have said (but our microscopical observations on wool will show that to be scarcely possible,) that occasionally the change in the structure of the filament is so great that a certain length of hair is interposed between two portions of wool; often, however, close observation will discover a remarkable diminution of the bulk of the fibre, a withered and opaque surface, and a partial loss of the characteristic serrations and cones. These wools are much deteriorated in value; they will give way under the operation of the comb, and will injure or spoil the manufacture in which they are used. A microscope is not always needed in order to discover this change in the wool; but if such an instrument is at hand—and no wool-stapler or wool-grower should be without one—the semi-transparency of the wool, and the opacity of the hair—and the roundness and fulness of the healthy fibre, and the withered appearance of the joint, or *breach,* as it is called, will form a singular contrast.

As a general rule, the filament is most transparent in the best and most useful wools, whether long or short It increases with the improvement of the breed, and the fineness and healthiness of the fleece; yet it must be acknowledged that some wools have different degrees of transparency and opacity which do not appear to affect their utility or value. In the Vigonian wools the staple is nearly opaque, but the wool is remarkable for its smoothness and silky texture. It is, however, the difference of transparence in the same fleece or in the same filament that is chiefly to be noticed as impairing the value of the wool.

Mr. Luccock speaks of some families of sheep in which the pile is flat and smooth, like a small bar of finely polished steel. A few filaments of this kind, the author has observed, but they have seldom been sufficiently numerous to be regarded as constituting the character of the fleece, and in the decided number of cases, the appearance has been altogether deceptive. It has arisen from the direction in which the light has fallen on the object; and the lamp being raised or lowered, or drawn on one side, the seemingly flattened bar assumed its circular but withered form. These sheep had been cruelly neglected, the secretion of the woolly fibre had never been healthily discharged, and the whole fleece, or a great portion of it, might be said to have assumed a *breachy* character.

SIR WILLIAM JONES.

This man, so remarkable for his literary labors, for industry, and methodical habits, never was known to depart from the rules contained in a few simple maxims, which he often repeated.

The first was, never to neglect any opportunity of improvement which presented itself.

The second was, that whatever had been attained, was attainable by him; and that therefore the real or supposed difficulties of any pursuit formed no reason why he should not engage in it with perfect confidence of success.

The third was, not to be deterred by any difficulties which were surmountable, from prosecuting to a successful termination that which he had once deliberately undertaken.

It was by attending to these maxims, that he was enabled to accumulate a vast mass of knowledge, and to accomplish labors of a magnitude seldom surpassed.

Opportunity has hair in front—behind she is bald. If you seize her by the forelock, you may hold her, but if suffered to escape, you cannot catch her again.

We seldom find persons whom we acknowledge to be possessed of good sense, except those who agree with us in opinion.—*Rochfaucault.* When such occasions do occur, our self-love always induces a decision in favor of their judgment.

Young Men's Department.

(For the Cultivator.)

EARLY IMPRESSIONS.

The tendency which the mind receives in early life, it inclines to follow in advancing years. Our first impressions take the deepest root, and seem almost to become incorporated with our nature. Hence it is, that every individual is so set in his first opinions. Our early impressions would prevail with us through life, if our opinions could not be altered. But the mind can be affected, and the understanding influenced; therefore, our first opinion of things can be changed and eradicated. The most powerful way, perhaps, to effect a change, is the influence of example. Many who, for a time, possess a moral character, become out-casts from society, by associating with the bad. The school-boy, that is fond of mischief while at school, generally commits more or less crimes during his life-time, unless changed by good examples, to mend his ways. The son of a slovenish farmer, unless his habits are altered, will follow his father's ways, and become a brother to UNTHRIFTY. The child, that is nourished with ardent spirits in its infancy, will be laid in a drunkard's grave, unless the evil practice be abandoned. The agriculturist, by sleeping after sun-rise, will form a habit, which, if continued, will be the means of losing the best part of his time, and the cause of a great deal of trouble, which might be avoided by early rising. Thus we see the great importance of forming such habits, only, as will render us happy in life, and guide us smoothly through that short space of TIME which is allotted to man. Our early impressions have such a bearing upon our nature, that they can easily be discovered in old age. When the aged take a retrospective view of early life, it raises their ideas with youthful ardor, to the highest degree of recollection, and many impressions are brought to mind which were formed in early life. It affords me high gratification, to see so great a number of young men engaged in tilling the ground, and receiving such impressions from agricultural papers, that will render them agreeable in society, and the future glory of our large and rising country. Many there are, who pretend that education belongs not to the farmer. None will uphold this idea, who have made the least progress to the fair *Temple of Fame*, or else, in early life, received the erroneous impression, that none but the lawyer, doctor, merchant, and the rich idle man, could be educated to an advantage, or those who intended to follow these branches. George Washington, one of the greatest generals that ever unsheathed a sword, after gaining our independence, cultivated his farm with frugality. His early opinions followed him through all his battles; and he lived and died on his possessions, after severe struggling, for more than seven years.

J. INGHAM.

Manheim, Herkimer county. April 12th, 1836.

SELF-EDUCATION.—BY WILLIAM WIRT.

And this leads me, gentlemen, to another remark, to which I invite your attion. It is this:—The education, moral and intellectual, of every individual, must chiefly be his own work. There is a prevailing and fatal mistake on this subject. It seems to be supposed, that if a young man be sent, first to a grammar school, and then to college, he must of course become a scholar: and the pupil himself is apt to imagine that he is to be the mere passive recipient of instruction, as he is of the light and atmosphere which surround him. But this dream of indolence must be dissipated, and you must be awakened to the important truth, that, if you aspire to excellence, you must become active and vigorous co-operators with your teachers, and work out your own distinction, with an ardor that cannot be quenched—a perseverance that considers nothing done whilst any thing yet remains to be done. Rely upon it that the ancients were right—*Quisque suæ fortunæ faber*, both in morals and intellect, we give their final shape to our own characters, and thus become, emphatically, the architects of our own fortunes. How else should it happen that young men, who have had precisely the some opportunities, should be continually presenting us with such different results, and rushing to such opposite destinies? Difference of talent will not solve it, because that difference is very often in favor of the disappointed candidate. You shall see issuing from the walls of the same school—nay, sometimes from the bosom of the same family—two young men, of whom the one shall be admitted to be a genius of high order; the other, scarcely above the point of mediocrity: yet you will see the genius sinking and perishing in poverty, obscurity and wretchedness; while, on the other hand, you will observe the *mediocre* plodding his slow but sure way up the hill of life, gaining steadfast footing at every step, and mounting at length to eminence and distinction, an ornament to his family, a blessing to his country. Now, whose work is this? Manifestly their own. *They* are the architects of their respective fortunes. The best seminary of learning that can open its portals to you, can do no more than afford you the opportunity of instruction, but it must depend, at last, on yourselves, whether you will be instructed or not, or to what point you will push your instruction. And of this be assured—I speak from observation a certain truth:—There is no excellence without great labor. It is the fiat of Fate, from which no power of genius can absolve youth. Genius unexerted, is like the poor moth that flutters around a candle till it scorches itself to death. If genius be desirable at all, it is only of that great and magnanimous kind, which, like the condor of South America, pitches from the summit of Chimborazo, above the clouds, and sustains itself at pleasure, in that empyreal region, with an energy rather invigorated than weakened by the effort. It is this capacity for high and long continued exertion—this vigorous power of profound and searching investigation—this careering and wide-sweeping comprehension of mind—and those long reaches of thought, that

> Pluck bright honor from the pale-faced moon,
>   Or dive into the bottom of the deep,
> Where fathom-line could never touch the ground,
>   And drag up drowned honor by the locks.

This is the prowess and these the hardy achievements which are to enrol your names among the great men of the earth.

But how are you to gain the nerve and the courage for enterprises of this pith and moment? I will tell you:—As Milo gained that hoc signo vinces: for this must be your work, not that of your teachers. Be you not wanting to yourselves, and you will accomplish all that your parents, friends and country have a right to expect.

EDUCATION OF THE APPETITES.

It must begin from the earliest infancy, long before the dawn of reason, and even anterior to the evolution of the moral sentiment. The rule on which it is conducted is a very simple one, applicable to all classes. It is to allow no child the indulgence of an appetite or propensity, other than what is required by its intuitive wants for its bodily support and health. Nothing is to be conceded by the whim or caprice of a parent to the imaginary wants of a child; for it must be constantly borne in mind, that every gratification of every sense, whether of taste, sight, sound or touch, is the beginning of a desire for its renewal; and that every renewal gives the probability of the indulgence becoming a habit;—and that habit once formed, even in childhood, will often remain during the whole of after life, acquiring strength every year, until it sets all laws, both human and divine, at defiance. Let parents who allow their children to sip a little of this wine, or just taste that cordial, or who yield to the cries of their little ones for promiscuous food, or for liberty to sit up a little later, or to torment a domestic animal, or to strike their nurse, or to raise the hand against mamma, ponder well on the consequences. If they do not, often vain are the after efforts of instructors; vain the monitions from the pulpit. Their child is in danger of growing up a drunkard, or a glutton, a self-willed sensualist, or passionate and revengeful; prompt to take the life of a fellow-being, and to sacrifice his own; and all this because the fond parents were faithless in their trusts. They had not the firmness to do their duty; they feared to mortify their child, and in so doing, they expose him in after life to be mortified by the world's scorn; to wander an unloved, unpitied thing.—*Journal of Health.*

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at this office, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 21st May and 20th June inclusive. Numbers under ten not noticed.

POST-OFFICES.		POST-OFFICES.		POST-OFFICES.	
Ayletts, Va.	11	Hudson, Col.	11	Potsdam, St. Law.	11
Bordentown, N. J.	13	Jefferson, Ohio,	11	Pittstown, Rens.	12
Brownsville, Pa.	13	Juliet, Ill.	25	Plattsburgh, Clint.	21
Barrytown, Dutchess,	11	*Johnstown, Mont.	25	Rushville, Ill.	11
Brantingham, Lewis,	11	King George C. H.Va.	11	Sculltown, N. J.	11
*Cambridge, Wash.	24	*Lebanon, Madison,	19	Shippensburgh, Pa.	11
*Cortland village, Cort.	19	Monticello, Sull.	17	Schroon, Essex,	21
*Chelsea, Vt.	12	*Marshall, Michigan,	14	*Saratoga Springs, Sa.	102
Connellsville, Pa.	11	Monroe, Orange,	15	Shoreham, Vt.	29
Catskill, Greene,	12	Newbern, N. C.	11	Terre Haute, Ia.	27
Coxsackie, do.	15	Northfield, Vt.	13	*Unadilla, Mich.	13
De Ruyter, Madison,	15	New Berlin, Chen.	10	Vincennes, Ia.	11
*Enfield, Conn.	13	Newtown, N. J.	28	Vienna, Md.	20
*East Hamburgh, Erie,	15	*Oswego, Os.	18	Walton, Del.	11
Edgecomb's corn. Sar.	15	Owenville, West.	11	Warren, C. H. Pa.	24
Gallipolis, Ohio.	33	Prince Edward c. h.Va.	12	*W. Stockholm, St. L.	23
*Glenn's Falls, War.	20	Pleasant Plains, Ten.	11	Wallingford, Vt.	12
*Hamburgh, N. J.	13			*Washington city, D.C.	50

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. June 18.	Boston. June 15.	Philadel'a. June 13.	Baltimore. June 14.
Beans white, bush........	1 75.. 2 00	1 87.. 2 25	..1 75	1 50..1 75
Beef, best. cwt...........	7 00..10 50	6 00.. 8 00	7 00..9 00	7 00..8 50
Pork, per cwt............	9 50..10 75	12 75..13 25	10 75	8 00..8 50
Butter, fresh, pound, ...	22.. 24	20.. 27	17.. 19	20.. 31
Cheese, pound, ...	9.. 11	10.. 12	10.. 11	
Flour, best, bbl......	7 00.. 7 62	7 00.. 7 37	6 00..6 62	6 75..8 25
GRAIN—Wheat, bushel, ..	.. 1 44	....	1 35..1 40	1 38..1 50
Rye, do. ..	.. 83	95.. 98	82.. 83	90.. 95
Oats, do. ..	48.. 53	55.. 56	43.. 44	40.. 45
Corn, do. ..	.. 80	78.. 92	76.. 83	77.. 80
SEEDS—Red Clover, lb...	10.. 11	11.. 12	10.. 11	.. 12
Timothy, bushel,.	2 75.. 2 80	2 75	2 00..3 00	2 50..3 00
WOOL—Saxony, fleece, lb.	50.. 75	60.. 75	70.. 75	30.. 68
Merino, lb..... .	60.. 65	55.. 65	67.. 70	28.. 55
1-4 and com. lb...	40.. 48	40.. 48	45.. 50	22.. 45
Sheep, ...	....	2 50.. 3 00		
Cows and Calves,........	18 00..35 00	15 00..30 00	....	12 0..50 0

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

Vol. III. ALBANY, AUGUST, 1836.—(67 State-street.) No. 6.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—Judah Dobson, Philadelphia—Messrs. Hovey, Boston—George C. Thorburn and Alexander Smith, New-York. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

TO POST MASTERS.

☞ We send a copy of this number to every Post Master in the United States, (say 9,000) except to about 2,000, to whose offices the Cultivator is already forwarded. This is done at the request and at the charge of Edward C. Delavan, Esq., of this city, the object of whose munificence is explained in his letter to the Conductor, inserted under the head of correspondence, and to which we beg to refer the reader.

We avail ourselves of the occasion, respectfully to invite post masters to aid in carrying out the philanthropic object of the donor, and to ask of those who cannot give their personal attention to it, to place this number in the hands of some efficient friend to agricultural improvement, in the hope, that a wish to subserve the public good, will induce such to solicit and forward subscriptions to the Cultivator. Subscribers will be furnished with the five published number of this volume. The terms of the Cultvator will be seen above. The second volume, in a stitched form, with 70 explanatory and descriptive cuts, will be forwarded at the subscription price. The first volume is out of print. The postage of a volume is 12½ cents to any place in the state, or within 100 miles of Albany, and does not exceed 18¾ cents to any post town in the United States. Subscriptions can be received only for an entire volume.

MATTERS OF INTEREST TO ALL.

We venture to lay down the following propositions, as adapted to our day and country:

1. *Every business in life is mainly dependant, for its prosperity, upon the labors of agriculture.*

Agriculture is the body, while the other professions are the members; and although the body and members are mutually dependent, and reciprocally useful to each other, the body can exist without the members, much better than the members can exist without the body. The farmer can supply his necessities, and most of his reasonable wants, within the circle of his family; he can feed and clothe himself: but his wants are enlarged, and his ability to gratify them increased, in proportion to the profits of his labor. If through ignorance or sloth he produces only what is necessary for the sustenance of his household, he can buy neither of the merchant, the manufacturer or the mechanic,—nor contribute to the support of the learned professions; or, if he buys, he cannot pay. But if his produce is double what is required for the consumption of his family, the surplus half may be employed for the benefit of the other classes—in purchasing from them the comforts and elegancies of life. The other classes, on contrawise, cannot thrive, as such, without the aid of the farmer: he furnishes the raw materials for the manufacturer, he feeds the mechanic, and freights the bark of commerce; and is besides the principal customer to them all. It follows, as a corrollary, that

2. *The prosperity of a state is determined by the good or bad state of its husbandry.*

We see every where, in districts as well as in entire states, the strongest proofs of the correctness of this proposition. Contrast Dutchess, Orange and Columbia, with any three counties where agriculture is neglected, or managed in the old slovenly manner: In the first, all classes thrive and prosper, if they are industrious and prudent; because there the body is in healthful vigor. In the latter, you will find the body lethargic, diseased, and covered with putrifying sores, and the members partaking of all its infirmities. The last winter's experience, in our cities and towns, shows their extreme sensitiveness to the fluctuations in the supply of agricultural products. Some of the farmers' crops were last year deficient in their accustomed yield, and the consequence was, the buyer had to pay 25 and 50 per cent above the ordinary prices for many articles of the first necessity. Had the products of the soil been double what they were, prices would have been low, and the buying classes would have subsisted cheaper and better, and the farmer would have purchased of them, in return, more liberally.

3. *The improvements and profits of agriculture, and the consequent prosperity of a state, are in the ratio of the measure of intelligence which guides its labors.*

The head can do more than the hands. The animal strength of the ox and the horse would effect no useful purpose, without the contrivance and direction of man. In many countries on the old continent, where the cultivator is debased by ignorance and despotism, the awkward, ill-contrived implements of the primitive ages are still in use; and in some parts of our own land, the hoe, or the rudest machine of a plough, is still substituted for the greatly improved implements of modern times, because the cultivator is ignorant and servile. There is not a manufacturing employment, nor a mechanic art, but has been greatly abridged in its manipulations, and had its fabrics improved in quality, and reduced in price, by the aid of modern science. We say *modern* science, because we consider that some branches are but beginning to develope their practical advantages to useful labor. We verily believe, that science can do more, and will do more, in the coming thirty years, to improve the condition of agriculture, than has been effected in the two last centuries. An intelligent head is deemed of more importance, and commands a higher compensation, in many of our large establishments, than half a dozen mere sinewy arms. Mind is the lever that moves the material world,—the master-spirit that civilizes man, and multiplies his comforts and enjoyments. We acquire knowledge in our business, mechanically, but slowly. The acquisition may be accelerated and augmented, to an amazing extent, by the experience and teachings of men who have made natural and chemical science their study and employment for life. There is another consideration which renders the improvement of the mind of public benefit: ignorance begets indolence, and indolence begets vice. If we would, therefore, inculcate virtue, we must foster industry; and if we would make industry respectable and desirable, we must throw light upon its paths, and secure for it merited reward.

If we have succeeded in establishing our propositions, it results as a consequence, that the improvement of our agriculture is of the first importance to every class of our population; and that this improvement can in no way receive such efficient aid, as by instructing the youth who are hereafter to manage its concerns, as well in the science as in the practice of their business.

We have drawn the reader's attention to the subject at this time, that the measures necessary to produce the desired result may undergo a thorough and timely investigation, and that our citizens may be prepared to co-operate in such of them, as may seem best adapted to subserve the public weal, before the coming winter. The distributive share to New-York, of the surplus revenue, which congress, with great unanimity and wisdom, has directed to be divided among the states, will probably amount to between two and three millions of dollars. And the question will present itself to our next legislature, and upon which they will want an expression of the public wish, to what objects, and in what manner shall these monies be applied? Shall they be expended on internal improvements, on education, and in improving our agriculture, upon either or all of them, exclusively, where their benefits cannot fail to be general, and important, and abiding,—or shall they go into the general fund, where their benefits are likely to be more partial and transitory?

As pertinent to this subject, we would ask the reader's attention to the extract in our young men's department, from "First Lessons in Political Economy," by Professor M'Vickar, of Columbia College, a little work which the man as well as boy may peruse with profit.

BEET SUGAR.

We have received, from E. C. Delavan, Esq., a specimen of sugar manufactured in France from the beet root, which may be examined at the office of the Cultivator. It is superior in quality to the best American refined sugar that we have seen. Dr. Spoor, of Coxsackie, has promised us another sample, which he recently procured at the manufactory in France, and for which he paid a franc, about 18 cents, the pound. We gave in our last volume, the course of culture, and process of manufacture, from Chaptal. But the manufacturing process has been simplified and cheapened, since Chaptal wrote, and the manufacture has been brought down, like the silk business, to the adaptation of household labor and family economy. We are not yet in possession of the new process; but as soon as we obtain it, we intend to give it circulation in the Cultivator. The business is not likely to interfere with the interests of the south. The amount of foreign sugar imported is very great; and the consumption is likely to increase with the domestic supply. The advantages which the fabrication of sugar from the beet promises to the far west, must be particularly great.

The culture of the beet, and the fabrication from it of sugar, as a branch of national industry, and a source of national wealth, is not only exciting great interest in France, but in Prussia, and in other states on the continent. Gen. Tallmadge has transmitted to the American Institute many facts in confirmation of these truths; and the letters of Mr. Pedder, who went to France to obtain a practical knowledge of the business, abound with valuable notices of its improvement and extent. The Royal Central Society of Agriculture in France, awarded in April a premium to M. Lecerf, for having established a small manufacture of beet sugar, where he prepared daily, without other aid than that of his family, 50 kilogrammes (137½ pounds) of sugar, ready for immediate family use. The society have offered premiums to the value of 7,200 francs, ($1,296,) besides medals, as a further inducement to enterprise and improvement in the business. The cultivation of the beet, says Mr. Pedder, embraces three grand distinct objects: 1st. the making of sugar; 2d. the feeding of cattle; 3d. the improvement of agriculture: for it affords an excellent material, and a substitute for turnips and carrots, for stock, and a suitable root crop to alternate with grain and grass. It causes a cleansing and perfect pulverization of the soil, and wheat is found to succeed it admirably well. It is considered the foundation of all good husbandry, as the turnip is in Norfolk.

Mr. Pedder had visited many of the beet and sugar establishments, some of which were on an immense scale, producing two or three millions pounds of sugar annually, and had joined in the manual-labor of raising the beet. From the washing of the roots to the pouring of the juice into chrystalizing pans, is only the work of 10 hours. 100 lbs. of beet yield 85 lbs. of juice. Some machines crush 50,000 to 75,000 lbs. of roots in 24 hours. The pressed cake sells at about 10 cents the bushel, for feeding cattle. Mr. P. saw in one place 57 horses and 30 fatting oxen, fed wholly upon the cake and cut straw, the oxen being finished off with oil cake. It is now estimated, that under the improved process the beet yields 10 per cent, of saccharine matter. One gentleman had a crop of 400 acres of beets. A perfect drill barrow has been invented, which sows five rows at a time, covers the seed and rolls the ground. Fifty pounds of the cake, mixed with one pound of oil cake, are given daily to ten sheep. 100 pounds of beets, valued at 25 cents, give 6 pounds of sugar, 4 pounds of molasses, and 25 pounds of cake. There are 64 manufactories at Valenciennes and its neighborhood; and between this town and Arras, and to Belgium, the country, says Mr. P. is covered with beet fields and sugar houses; and he counted six or eight of these large buildings together, and twenty-eight were counted at one time in sight.

Mr. Pedder closes one of his letters as follows: "I believe that two persons cannot meet without the first topic being *Betterâve*, (beet root.) Indeed I am not sure that the parson did not preach about it last Sunday. Nothing else is thought or spoken of; and no wonder, for from 100 pounds of beet root they make six pounds of sugar, besides eight pounds of molasses, with which to make sugar of the second quality, and fifteen pounds of cake, sufficient to keep three sheep a day.

"Three years ago there were 13 manufactories at Valenciennes, there are now 64. Land which was then 500 francs an arpent, now bring 1,200; the price of labor is much risen, and the people are getting fat on the mutton and beef made upon the cake, or *caput mortuum* of the root. What will this not do for America."

MARL.

Through the kind aid of Dr. James Eights, we are enabled to present an analysis of various specimens of marl, which have been forwarded to us for examination. Most of them are found to be very rich in carbonate of lime, the property which gives them value as a fertilizing material for our lands. We have reason to believe, that this valuable earth abounds, in some of its modifications, in almost every district of our country, and that its localities are providentially fixed in the neighborhood of soils most susceptible of being benefitted by its application. The contemplated Geological Survey, if properly directed to this subject, cannot but be of incalculable advantage to the agriculture of the state.

The quantity of marl which is most advantageously applied, depends, first, upon the quantity of carbonate of lime, if any, already existing in the soil; second, upon the richness of the marl in this carbonate; and, third, upon the depth to which the soil is to be cultivated. M. Puvis has given us a table showing the quantity to be applied under different circumstances, graduated upon giving to the tilth, or cultivated stratum, three per cent of calcareous earth.—Mr. Ruffin, the able editor of the Farmer's Register, the best authority, we think, which we can quote in these matters, is of opinion that three per cent is too much for safe and profitable dressings; and that for a general average, after making due allowance for causes for exception to the general rule, *one* per cent is abundantly high for the average dressing. He has drawn up a table upon this scale, which we here transcribe, omitting the fractions of bushels, calculated greatly to assist the farmer in graduating the marling process The ordinary cart or wagon load will contain from 20 to 35 bushels.

When the marl contains, of carbonate of lime, per cent.	*Number of bushels of marl necessary to give one per cent of carbonate of lime to an acre, for a ploughed depth of soil, of*					
	3 inches.	4 inches.	5 inches.	6 inches.	7 inches.	8 inches.
10	875	1166	1458	1750	2041	2833
20	437	583	729	875	1020	1166
30	291	388	486	583	680	777
40	218	281	364	437	510	583
50	175	233	291	350	409	466
60	145	194	243	291	340	388
70	125	180	208	250	291	333
80	109	145	182	218	255	291
90	97	129	162	194	226	259
100	87	116	145	175	204	233

Let it be remembered, that marl is not a substitute for dung; but it greatly enhances its benefits, by rendering the soil to which it is applied more retentive of moisture and vegetable food, and fitting it to exert a better influence in the growth of plants.

The following is the analysis furnished us by Dr. Eights:

"*Marl from Cortland Co.*—100 parts contains 65 of carbonate of lime—the remainder consists of about equal parts of aluminous earth and vegetable matter.

"*Schenectady marl*—Lime 66—the remainder principally vegetable matter.

"The *Montgomery* sample proves, upon investigation, to be the agaric mineral of authors; in some few instances, however, it may be seen passing gradually into the purer varieties of calcareous tufa. It is nearly a pure carbonate of lime. The specimen I examined, very readily yielded eighty per cent of that earthy salt, the residue consisting of very small portions of silex, alumine and vegetable decomposition, irregularly combined.

"*Bennington marl*—Lime 70—the remainder silex and vegetable matter.

"*Greenbush marl*—Lime 30—the remainder a fine grained quartzose sand (silex.) If it exists in some considerable quantities, this is probably not a fair specimen. It is found on the cantonment farm, owned by Mr. H. M'Culloch. It also contains, in great profusion, the following fresh water shells—*Cyclas similis*, *Planortis bicarenata*, and *Planortis trivalvis*, of Thomas Say.

"On the farm of Henry Martin, situate in the town of Bethlehem, immediately at the base of the Helderburgh hills, exists an extensive bed of this marl, of an extremely white appearance, and also abounding with fresh water shells."

HAY MAKING.

We make the following extracts from Prof. Low's Elements of Practical Agriculture, to strengthen the recommendation we have frequently made, of *making hay in the cock*. This mode we consider entitled to preference, for the substantial reasons, that the hay thus made requires less labor, is less liable to injury from rain and dew, is less exposed to the wasting effects of a hot sun, retains more of its juices, and is more sweet, fragrant, and of better color, than when cured in the ordinary way.

"The swaths lie for a short time to wither; and are then turned gently over by a fork, or the handle of the hay rake, in such a manner that they shall not be broken or spread abroad. In 24 hours or more afterwards, they may be put into small heaps or cocks, on every third or fifth ridge, according to the bulk of the crop, the ground being at the same time carefully raked.

"It is a good practice to put up the hay green in these first cocks, and then to enlarge them by putting two together. If at this early stage they undergo a degree of incipient fermentation, it is no matter. It is in the later stages of the process that heating or fermentation becomes hurtful.

"In the making of hay, the great end to be aimed at is, to prepare it as quickly as possible, *and with as little exposure to the weather, and as little waste of the natural juices*, as circumstances will allow. When we are enabled to do this, the hay will be sweet, fragrant, and of a greenish color."

GRAIN WORM.

We regret extremely to learn, that not only has the wheat crop, wherever, in this neighborhood, the farmer has ventured to sow it, been seriously injured by the grain worm, and in many cases destroyed, but that this new enemy has entered the barley fields, and in some cases destroyed the entire crop. Whether this evil is to be temporary or permanent, remains to be seen; but it is evident that its effects are at present seriously alarming. Our two last legislatures have been admonished of the threatened danger, and asked to do something to endeavor to avert it; but, for want of time, or want of disposition, or because the magnitude of the evil was not appreciated, nothing was done, nor was the subject reported upon. A million of dollars would be a cheap purchase for an efficient preventive; and if none should be discovered, the treasury would not have suffered in the payment of premiums. Should the grain worm become as destructive in the western, as it now is in this section of the state, and we at present see no reason why it should not soon become so, it will diminish the canal revenue at least a hundred thousand dollars the first year, to say nothing of the millions of loss which it will cause to the cultivators of the wheat and barley crops.

Providence seems wisely to have encompassed us with evils, as if to keep in constant and healthful exercise our higher faculties, to avert or remedy them. We are endowed with a capacity, to search into, and understand, and render subservient to our wants, many important principles of natural science; we are admonished, in a thousand ways, to cultivate and improve this noble talent, and we seldom fail of realizing the reward of obedience, or of suffering the penalty for neglect: for the gratification of the mere animal appetites, are but mean debasing objects for man to fix upon as the goal of his ambition, and the limit of his desires. The labors of the statesman, the patriot, and the philanthropist should be circumscribed only by the limits of the state, or the welfare of the human family. A timely exercise of legislative prudence *might* have done much good, and could not have done any injury.

Female Education.—Our correspondent F. has admonished us, that we are neglecting a promised duty to our female readers. We hasten to make amends, and insert, to-day, a valuable extract from Combe's "*Principles of Physiology, applied to the Preservation of Health*," a work of very high repute. We insert it in the Young Men's Department, for the reason, that young men are specially interested in whatever promotes the welfare of the lovelier sex. Two prominent qualities which govern young men, or which should govern them, in matrimonial concerns, are, to select partners who possess good health, and a knowledge of domestic duties; and without the first, they can be but illy qualified to execute the latter. No one covets an effeminate or diseased offspring; and it is a received axiom, that children are liable to partake of the physical as well as intellectual qualities of their parents. Nature has formed our females in her fairest mould; and it is feared, that all attempts to improve her work, by artificial enlargement or compression, and all avoidance of her parental injunctions, by neglecting the muscular exercise, which can alone secure heath, is but marring her beneficent designs. Naturalists insist, that the works of the Creator are always perfect, and peculiarly adapted to the purposes they are intended to subserve. Art can add nothing to the beauty or fragrance of the rose. It is a subject of common remark, that our females become pallid, enervated and sickly, in proportion as they indulge in the giddy caprice of fashion. Whether this be owing to refined living, the want of muscular exercise, or to the ill-judged discipline of the boarding-school, to one or all of them, it is not our province to decide; but it is evident, that since the spinning-wheel has been superseded by the woollen and cotton mills, and our ability to indulge in indolence and the luxuries of life have increased, it requires more good sense, more fortitude and self-denial, in our females, to resist the debilitating, and we may add, debasing influence of sedentary life, than it did formerly. Indeed, such has been the deleterious influence of fashionable habits, upon the population of our cities, that serious fears have been expressed, that our towns would soon degenerate into Italian effeminacy and impotency, but for the continued influx which they receive, particularly of "corn-fed" girls, the "romping rosy Nells," from the country. The oak, which nature destined to be one of the hardiest trees of our forest, if reared in the artificial temperature of the green-house, cannot resist, when afterwards exposed, the inclemency of our winters. It must buffet the storm, acquire muscular strength from the influence of the winds, and become indurated and toughened by the solar and atmospheric influences, and the alternation of the seasons, to become fitted for the useful purposes of man. We leave the reader to carry out the parallel, between vegetable and animal physiology, after perusing the extract in our last page.

Strawberries are among the plants which are most impatient of a fixed location,—they soon exhaust the soil in which they grow. Nature has therefore provided the means of their obtaining fresh pasture, or rather fresh soil, by means of the stollens or vines which the parent plant annually sends abroad. The professional gardner, knowing these facts, changes frequently the site of his strawberry beds, often every two years, and sometimes every year, to insure a good crop. We think we have discovered a specific food for this desirable plant, the application of which serves to render change of location less necessary. Our present strawberry quarter is five years old. In the fall of 1834, we covered one bed with a light dressing of tan from a morocco factory, with a view to protect the plants from the severity of winter; and in the spring the tan was suffered to remain on the bed. We were agreeably surprised at finding this bed not only showing a stronger and healthier foliage, but yielding a far greater quantity of fruit, than any other. The whole quarter was in consequence dressed with tan in the autumn of 1835, and our crop this year has been treble to what it has been heretofore; though much of the increase has undoubtedly been owing to the favorable season for this fruit.

This month and the beginning of September is the best season to put out strawberry beds. The ground should be well manured, and dug the depth of the spade. The Methven and Keen's seedling we deem the best of the large varities. Plant the rows of these twenty inches apart, fourteen inches between the plants. Dip the roots of the plants in thin mud or puddle before planting, and water them when planted. They do best on a cool and moist, though loose soil; hence old cow manure, mixed with leaf mould or swamp earth, make for them a good dressing.

Country Saving Banks.—We omitted, in our last, to draw the attention of our readers, as we designed, to the communication of an Enfield correspondent, demonstrative of the feasibility and practical utility of these institutions. Many an individual, by the safe deposite afforded by city savings banks for his earnings, has been confirmed in habits of industry and usefulness, who might, but for them' have become indolent and dissipated. In these banks of savings has been formed the necleus of many a comfortable fortune, which might otherwise have gone to waste. They have tended to promote industry and economy in the city, and they will exert the same salutary influence in the country, where, indeed, they produce a double benefit, by affording loans to the small capitalist, who cannot, either from his location or the small amount required, obtain ordinary bank facilities. The subject is worthy the consideration of gentlemen of influence and standing in the country.

Agriculture, for the purpose of comparison, may be considered as a *trade*, an *art*, and a *science*.

The *trade*, is mechanical, requiring muscular strength. It is imitative—it is to do a thing as one has been taught to do it, or has done it before. The ox in a measure acquires it. He knows his master and his master's crib; he treads the accustomed furrow, turns at the head lands, and understands and obeys the driver's commands. The mere servile laborer moves in the old routine, without concerning himself about the why and the wherefore, almost unconscious that he has a mind.

The *art* implies a co-operation of the mind with physical power. The mind contrives; it is a lever which greatly assists and abridges the labor of the hands. The mind, like the soil, makes return in proportion to the culture which is bestowed upon it. Both are unproductive without culture. The mind is improved by observation and reading, which makes it familiar with the best models of practice, and enables it to profit by the improvements of others, in the various departments of husbandry.

The *science* teaches the laws and properties of inorganic matter—as of rocks, earths, manures, &c. &c. of organic matter, as animals and vegetables;—of their structure, food and uses—and of the agency of heat, water, air, light and electricity in their development and maturity—the employment and adaptation of all these matters for the best uses of man. It concentrates the experience of ages, and the labors of nations, upon these interesting subjects, and makes them subservient to our wants and our comforts. The science is a collection of facts and leading truths, illustrated in practice, and confirmed by experience.

The trade, therefore, may be managed by the hands, the art requires the co-operation of the mind; while the science superadds to both, a knowledge of the laws and properties of matter, upon which the mind and body are required to exert their energies. The first may be likened to the feeble boy, the second to the muscular young man, and the third to him whose mind and body are in the active development of their best powers.

Worth remembering.—We have been informed, by a gentleman who has had practical proof of its success, of a new mode of keeping fruits fresh for the table, as grapes, plums, &c. a long time after they have been gathered. It is simply to alternate them in layers with cotton batting, in clean stone jars, and to place them in a chamber secure from frost. The discovery was accidental. A servant maid in the family of William Morey, of Union Village, Washington county, about to visit her friends, secured a quantity of plums in this way, to preserve them till her return. They were found to have kept in excellent condition, long after this fruit had disappeared in the garden. From the hint thus afforded, Mr. Morey, Mr. Holmes, and one or two neighbors, laid down grapes in this manner last fall, and they enjoyed the luxury of fresh, fine flavored fruit through the winter, until the early part of March.

Political Economy.—We have seen "*First Lessons in Political Economy*, for the use of Primary and Common Schools," by Professor M'Vickar, of Columbia College. It is the first of a series of text books which the author proposes to publish, suited to the varied ages and capacities of those for whose instruction they are intended. This subject, though it may seem to concern only the statesman, is one which comes home to the business concerns of every citizen, especially of those who aspire to the distinctions of society. We give an extract, under the young men's department, as a specimen of the matter and manner of the work, and commend it to the notice of teachers and heads of families. "The first principles of political economy," says our author, "are truisms which a child may understand, and which children should therefore be taught."

The Pear tree.—The disease, termed blight, which six or eight years ago, as also in 1802 to 1808, destroyed many of our pear trees, is again, we learn, making its appearance. We have been of opinion, that the evil arises from a minute insect, which preys upon the inner bark. An insect of this kind, almost imperceptible to the naked eye, has been known to destroy forests of the larch in Germany. Our opinion has been much strengthened by a conversation with Aaron Thorp, Esq., who finding his trees affected, has made trial of various applications, without success, until he has found, he thinks, an effectual preventive, or cure, in spirits of turpentine. He applies it on and about the diseased part, in its unadulterated state, with a common brush.

Green's Straw Cutter.—We have received from the Messrs. Shuier, of Lockport, one of these machines, of superior construction, for which we tender those gentlemen our sincere thanks. There is a manifest improvement in the material and strength of the knives; and the wood work is substantially made of black walnut, the mahogany of the west, and highly finished. Messrs. Shuler's have contracted with the patentee for the privilege of manufacturing and vending the machines in this state; and it is their intention, we understand, to have them for sale, in all our principal towns, the coming fall, of their improved construction.

The Hop Culture is said to be profitably conducted in England, particularly in Kent; and this will be matter of surprise, when we compare the produce with the expenses. The produce varies from one to twenty hundred pounds an acre, and the writer of British Husbandry assumes, as a fair average product, 700 pounds, while he estimates the expense of growing and securing an acre at £35 10s. (= to $157.62.) Among the items of expense we find the following:

500 poles, to repair annual losses, at 30s.	£7 10 0
Carriage of do.	1 10 0
Rent, including parochial rates,	6 00 0
Tithes,	1 10 0
Excise duty, 18s. 8d. per cwt.	6 10 8
	£23 00 8

The poles, with us, might cost half the above estimate, and the rent here would be high at $10 the acre. Deducting the difference in these items, the result would be, that thirty-three dollars of the above expense would be saved to the American hop grower, per acre, in the expenses above detailed; and that estimating the labor in both countries the same, the expense per acre here would be about $70. Calculating the average crop at 700 pounds, and the price 20 cents, the value of the crop would be $210, and the profit $140 per acre. These data will serve to show to our readers the profits of well-managed hop culture.

Cashmere Goats.—We ought before to have mentioned, that a pair of these valuable animals, whose coats furnish the material for Cashmere shawls, were shipped in France last winter, for Mr. J. D. Kinnear, of this city, and that the female only has arrived in safety, the male having died on the passage. This species of the goat is a native of Central Asia, and was introduced into France some dozen or fifteen years ago. We regret the loss of the male, and hope it will be replaced. Mr. Kinnear is deserving of commendation for his endeavor to introduce this valuable animal among us.

☞ A. W. Dunham asks, if ground lime-stone will answer for manure, as well as burnt lime? Lime-stone is corbonate of lime, the material sought for in marl, and is beneficial on soils deficient in this earth. Burnt lime is at first caustic, brings into action, as food of plants, vegetable matters in the soil inert, or insoluble. It gradually imbibes carbonic acid from the atmosphere, and ultimately becomes again carbonate of lime.

"*An old Farmer*," recommends to his brethren, that in clearing up land, they leave one or two trees, in the line of an intended fence, and where it is convenient to have gates or bars, to serve as gate or bar posts—as a matter of great economy. If bars are to be used, the mortices are to be partially cut in the sides, and a piece of plank or board nailed or pinned on as guards. The enclosures may be designated by the tree left for a post, as the hickory, maple or oak fields.

PARSNIPS—AS A FIELD CROP.

The labor and mode of cultivating the parsnip are about the same as those of the carrot. The parsnip produces the larger crop, its average product being rated at 24 tons the acre, and that of carrots at 12 tons. The parsnip also contains a far greater proportion of saccharine matter than does the carrot, is grateful to the palate of farm stock, and is greatly conducive to their fattening. It possesses another advantage over the carrot, in its hardiness—it may be left in the ground till spring, and is not injured by frost. In the island of Jersey it forms a regular part of the field system. The roots are fed in a raw state to hogs and horned cattle; the flesh of the former they are said to render delicately white, and the benefit derived from the latter is in the opinion of many growers, nearly equal to that obtained from oil cake, in point of the weight of flesh, and so superior in flavor, that in the island it always commands the highest price. Cows fed upon them during the winter months are stated to produce butter of a flavor and color equal to that of the most luxuriant grasses. In Jersey 25 pounds are given daily to the cows, with hay, and the cream is more abundant than from an equal quantity of milk from cows differently fed—seven quarts producing as much as 17 ounces of butter.

If the preceding facts, which we have mostly abstracted from *British Husbandry, Vol. II*, are correctly stated, and they appear reasonable, the culture of the parsnip, as a field crop, possesses great advantages over the carrot, if not over the mangold wurzel. It should not be concealed, however, that they soon cloy with neat cattle, if fed alone; and are not deemed so good for horses as carrots—the parsnip rendering them dull, and even affecting their sight; while the carrot is found to be more beneficial than grain, and is used in Suffolk instead of grain, at the rate of from four to seven bushels each horse per week. If any of our readers have tried the culture of the parsnip as a field crop, we should be much obliged to them for a statement of the results.

THE TURNIP.

"No person," says Lord Kames, in his "Gentleman Farmer," "ever deserved better of a country, than he who first cultivated turnips in a field. No plant contributes more to fertility."

The plant, although natural to a northern climate, and thriving best there, may be profitably grown in our southern states; indeed we have seen mention of their successful culture in Alabama. The southern summer has too high a temperature for their growth, but the southern autumn has not. South of Pennsylvania, if not in Pennsylvania, we should think the crop might be left in the ground all winter, and fed thence to the farm stock; and in the more southern parts, they would continue to *grow* all winter. The time of sowing, therefore, should be adapted to the climate. In Scotland the Swede is sown the last of May and first of June; with us, it is sown the last of June and first of July; in Pennsylvania and Maryland, we think it should not be sown till the last of July and first of August; and in the southern states, not before September and perhaps October.

Two important facts, ascertained by the analysis of the turnip, in Drummond's report, speak highly in favor of the Swedish variety: they are found to contain a greater proportion of nutritive matter than other kinds, and the proportion of nutritive matter is found to increase with the size of the roots, while the nutritive matter of other kinds is found to decrease with the enlargement of the roots. The nutritive matter may be judged of by the solidity or density. Assuming the green top yellows as a medium standard, the following extract shows the greater or less density, and consequent nutritive properties, of each kind.

Species and varieties.	Should weigh by size and standard.		Actual weight.	
	lbs.	*oz.*	*lbs.*	*oz.*
Swedish, or ruta baga,	11	2	13	12
Green top yellow,	16	00	15	00
Red top yellow,	12	00	12	10
Dalis hybrid,	13	12	12	00
White globe,	20	8	15	8
Red top white,	16	8	13	00
Green top white,	8	7	8	8
White tankard,	16	00	14	00
Purple do.	12	10	11	8

"From the above test," says the report, "the superiority of the Swedish is very decided, and contrary to other sorts, greater size also indicates greater solidity; which entirely agrees with the products they have been found to afford, of nutritive matter, being fully six per cent, and in the larger roots, nearly seven per cent of their whole weight; while the white varieties afford four per cent, and in the largest roots only three and a half per cent of their whole weight. Hence one acre of Swedes should be equal to one and a half of white, of the same weight."

Transplanting Evergreens.—We mentioned in our last volume, that on the 8th July, 1835, we transplanted from the commons, into our court yard, at 2 P. M. under a hot sun, the thermometer at 82°, six white pine trees, from ten to fifteen feet in height, and feathered with limbs nearly to the ground. The six trees are all living, and are making a good growth of new wood. Evergreens are best transplanted, when actually growing, and even when growing vigorously, if the influence of evaporation can be guarded against. In transplanting our trees, a circle of three or four feet was made with the cut of a spade around the tree, and there being no tap roots, it was raised to the cart with the earth attached to the roots. The holes in which they were planted were nearly filled with water, and when the plants were adjusted, coarse barn-yard litter was thrown over the roots; this was well saturated with water, and covered with an inch or two of earth. The trees were watered once or twice afterwards.

INTERESTING FACTS IN CHEMISTRY.

OF WATER.

Ice, when converted into water, absorbs and combines with 140° of caloric. Water, then, after being cooled down to 32°, cannot freeze until it has parted with 140° of caloric; and ice, after being heated to 32° (which is the exact freezing point) cannot melt till it has absorbed 140° more of caloric. This is the cause of the extreme slowness of these operations. There can be no doubt, then, that water owes its fluidity to its latent caloric, and that its caloric of fluidity is 140°.—*Thompson.*

However long we boil water in an open vessel, we cannot make it the smallest degree hotter than its boiling point, or 212°. When arrived at this point, the vapor absorbs the heat, and carries it off as fast as it is generated.—*Parke.* Hence in cooking, we attain the greatest heat at the boiling point; though by increasing the fire, we increase the evaporation.

Owing to the quantity of caloric that liquids require to convert them into vapor, all evaporation produces cold. An animal might be frozen to death in the midst of summer, by repeatedly sprinking ether upon him. The evaporation would shortly carry off the whole of his vital heat. Water thrown on hot bodies acts in the same way; it becomes, in an instant, converted into vapor, and this deprives these bodies of a great portion of the caloric they contain.—*Ib.* This explains why wet grounds have the coldest atmosphere, and are subject to the latest and earliest frosts—the evaporation is greatest here, as is also the consequent loss of caloric. And it explains how draining wet grounds ameliorates the climate, and promotes the health of a neighborhood—the water, instead of being evaporated from a broad surface, is concentrated in narrow drains, and carried off.

Steam is water expanded by caloric; and its force is equal to that of gunpowder. It is this expansive force which cause liquids to boil. The vapor is first formed at the bottom of the vessel, and, passing through the water, on account of its becoming lighter, causes that motion which we call ebullition. Water thrown into boiling oil, apparently explodes; a single drop coming in contact with the oil, would instantly, by its excessive heat, be converted into vapor, and would force part of the oil over the sides of the boiler.

When a living vegetable is moistened with water, and the sun shines upon it, two very important operations are performed at the same time, by the decomposition of the water which the sun's rays enable the plant to effect, viz. the plant is nourished by the hydrogen, and the atmosphere is purified by the restoration of its oxygen. Hence living plants, as shade trees, about dwellings, are conducive to health, as not only adding to the atmosphere oxygen, but as abstracting from it carbonic acid gas. But when water and the sun's rays, or heat, are applied to dead vegetables, the reverse takes place, and the surrounding atmosphere becomes impure, especially the exhalations from dead vegetables at night. Hence autumnal fevers in marshy situations, and often in new cleared districts, when the sun is first let in upon the dead vegetable matters of the forest.

It is owing to the expansion of water in freezing, that rocks and trees are often split during intense frost, and it is owing to this force that in our late severe winters, many of our fruit and other trees have been killed—the sap vessels have been burst, and the vitality of the tree consequently destroyed. It has been found, that a sphericle, or little globe of water, only one inch in diameter, expands in freezing with a force superior to the resistance of 13½ tons weight.

Though water takes a solid form in its various combinations, such as with lime, saline crystals, &c. there is no method of compressing it when in a fluid state.

If water be thrown on quick line, it will be retained by it with such force that nothing less than *red* heat will separate it. In its combination with lime it becomes much more solid than when in the state of ice, which may be proved by direct experiment. Calcined plaster of Paris, in a pulverulent state, becomes quickly solid by mixing it with water. Clay, when mixed with water, retains a tenth of its weight of that fluid at a heat which would melt iron.

It should be remembered, that all bodies which are soluble in water, form, during their solution, a chemical combination with water, and that solutions in water are different from mechanical mixtures.

OF LIME.

Bishop Watson found, by experiment, that upon an average, every ton of limestone produced 11 cwt. 1 qr. 4 lbs. of quick lime, weighed before it was cold; and that when exposed to the air it increased in weight daily at the rate of a hundred weight per ton for the first five or six days after it was drawn from the kiln. This fact is worth the consideration of those farmers who fetch their lime from great distances; and it is worth the consideration of the citizens of Albany, who are required to buy their lime by weight.

When quick lime is spread upon arable land, it destroys, by its causticity, the organization of all animal and vegetable matters remaining in the soil, and thus converts them into food for the future crop. In like manner lime would also burn up the tender shoots of the fresh plants, and sterilize, instead of fructifying the ground; but nature has so ordered it, that, as the lime falls to powder upon the land, it should gradually absorb carbonic acid from the atmosphere, which deprives it of its causticity, and converts it into chalk.—*Parke.*

Marl is a mixture of carbonate of lime, i. e. limestone in its natural state, and clay, or sand. Marls are useful in agriculture only in proportion to the calcarious earth they contain.

The bones of all kinds of animals are formed of lime and phosphoric acid, in the proportion of 48 parts of that earth, and 52 of phosphoric acid.—*Parke.*

Chalks, calcareous marls, or powdered limestones, act merely by forming a useful earthy ingredient of the soil, and their efficacy is proportioned to the deficiency of calcareous matter, which in larger or smaller quantities seems to be an essential ingredient of all fertile soils; necessary perhaps to their proper texture, and as an ingredient in the organs of plants.—*Davy.* Most of the United States east of the Allegany range and its spurs, is deficient in calcareous matters in the soil; and to this deficiency is to be ascribed, in a great measure, the unsuitableness of many districts for the growth of wheat, for which lime constitutes a specific food.

Slaked lime is merely a combination of lime, with about one-third of its weight of water; i. e. 55 parts of lime and 17 parts of water; and in this case it is composed of a definite proportion of lime to a definite proportion of water, and is called by the chemists *hydrate of lime;* and when hydrate of lime becomes carbonate of lime, by long exposure to air, the water is expelled, and the carbonic gas takes its place.—*Davy.*

The solution of the question whether quicklime ought to be applied to a soil, depends upon the quantity of inert vegetable matter which it contains. The solution of the question whether marl, mild lime or powdered limestone ought to be applied, depends upon the quantity of calcareous matter already in the soil. All soils are improved by mild lime, and utimately by quick lime, which do not effervesce with acids; and sands more than clays.—*Ib.*

When a soil deficient in calcareous matter contains much *soluble* vegetable manure, the application of quick lime should always be avoided, as it either tends to decompose the soluble matters, by uniting to their carbon and oxygen, so as to become mild lime, or it combines with the soluble matters, and forms compounds having less attraction for water than the pure vegetable substance.—*Ib.*

Lime always destroys to a certain extent the efficacy of animal manures, either by combining with certain of their elements, or by giving to them new arrangements. It should never be applied with animal manures, unless they are too rich, or for the purpose of preventing noxious effluvia. It is injurious when mixed with any common dung, and tends to render the extractive matter insoluble.—*Ib.*

PLANTING.—No. II.

Of the soils and situations most proper for planting, the treatise which we are consulting, "*Useful and Ornamental Planting,*" particularizes—

1. Exposed waste lands, and those that are steep, rocky and precipitous. The loss to individuals, and to the nation, by such large tracts of land lying utterly unproductive, is incalculable.

2. Lands of better quality, which are unproductive by reason of their exposure to bleak winds. Cases are cited, where lands altogether unproductive before, have been brought to produce good corn and pasture, merely by a judicious disposition and arrangement of belts of trees to shelter the ground, and thereby ameliorate the climate.

3. Where the local soil and climate are good, a scarcity of timber exists, or is likely to exist soon, for the periodical wants of agricultural and manufacturing operations. Here the planting may be confined to the angles of enclosures, belts on the exposed borders of the farm, as to the north, north-west and north-east, the bleak points of the farm-buildings, the borders of permanent divisions, and the highway side.

Every soil and climate are naturally adapted to the growth of particular species of trees. These indications of nature should be consulted, and trees growing naturally on similar soils in the neighborhood, or under a like temperature, should be selected. The work before us gives the analysis of various soils which had been planted as woodland, and indicates the trees which have flourished best upon each. On a sandy heath soil, containing but three parts in 400 of clay, incumbent on ferruginous stones, the Scotch fir, (*Pinus sylvestris,*) birch and beech succeeded well, and the last best when the subsoil was a deep sand. A poor sandy soil, seven parts in 400 of clay, was found congenial to the growth of the pine, larch, sycamore, &c. A sandy loam, with nine parts in 400 of clay, grew the larch and fir tribes luxuriantly, and also the beach. On a light sand, incumbent on clay, the oak and chesnut did well, and the elm tolerably so. A clay loam, on a clay subsoil, brought the oak to the highest state of perfection. On a damp clayey soil, incumbent on clay, the oak, elm, ash and horn-beam, attained to great perfection, and the tulip tree (whitewood,) grew free when the ground was trenched. A rich alluvial marsh soil, containing 32 parts in 400 of clay, and 40 of vegetable matter, is said to be capable of growing all kind of trees, at least the following were found to thrive extremely well, viz., willow, alder, (some of the European species of these, grow to trees,) elm, sycamore, ash, locust, birch, oak, horse chesnut, Spanish chesnut, horn-beam, lime, &c.

In selecting trees for a plantation, reference should also be had to quickness of growth and value of product. Where it is exempt from the borer, these qualities are found eminently combined in the common locust, (*robina pseudo-acacia,*) with the further advantage, that it multiplies rapidly by its roots. The oak, ash, beech, maple, walnut, baswood, plane, chesnut, elm, and many other native deciduous trees, are readily propagated by seed, and afford profitable timber and wood. Of the coniferous trees, the seeds of several species of the pine, larch, and fir, indigenous and exotic, may be readily procured. The Scotch pine and larch are particularly of thrifty growth, and are useful in the arts and on the farm.

The relative growth of several kinds of trees, during 17 years after planting, is shown below, as ascertained on a plantation of the Duke of Bedford, in England, upon a porous soil. The measurement was meant to indicate the medium size, individual trees being found much larger. The last column of figures shows the height at which the several kinds are usually planted out, from nursery beds, in Great Britain.

	Girth or circumference at 2 feet from the ground.	Do. do. at 7 feet.	Height in inches when planted.
Poplar, ...	41 inches....	37 inches..	18 to 36
Larch, ...	37 do......	32¼ do....	6 to 24

Pine,	32¼	inches ..	25¼	inches.	6 to 20
Elm,	32	do......	26	do....	9 to 30
Silverfir,	28¼	do......	25	do....	8 to 20
Spruce,	27	do......	22	do	
Chesnut,	27	do......	22	do....	12 to 30
Birch,	25	do......	20	do....	9 to 30
Sycamore,	24	do......	20	do....	6 to 30
Beech,	23	do......	21	do....	6 to 20
Oak,	23	do......	13	do....	6 to 30
Ash,	20	do......	17	do....	6 to 20

STACKING GRAIN.

In most parts of Europe, and in the state of Pennsylvania, and perhaps in other states, it is the practice to secure grain in stacks. This is not a matter of necessity, but of choice, from an impression that the grain keeps better, and is more secure from vermin, than when stored in the barn. There is probably no district of country that can boast of better and more capacious barns than are to be found in Pennsylvania; they may be termed splendid structures, and frequently cost from one to two thousand dollars: and yet they are hardly ever used for storing the unthreshed grain. In travelling in that state in August, we saw stack yards often containing from ten to twenty stacks of grain, but seldom saw any in the barns, several of which we examined; and we were informed, that the grain remained some times for years, in one instance seven, and until the market price was high, without sustaining injury—the farmer being rich enough to do without the avails of his crop till he got a good price. But there are many who must stack their grain from necessity; and as it is very important that the stacking process should be rightly managed, we have deemed it useful to copy from Low, a description of the mode practised in Scotland, where the business is managed in the most approved form. It follows:

"The stacks may be made circular, with a diameter of 12 feet or more, according to the convenience of the farmer, and the size of his barn. The manner of working is this:

"A circular layer of straw, or other substance, is laid, to form the bottom.—The workman begins by placing a sheaf upright in the centre of the intended stack, round which he places other sheaves, also on their but-ends, with the tops inclining inwards; and this he continues to do in regular courses, the sheaves being placed closely together, until he nearly reaches the outside of his foundation. He then lays an outside layer all around, the buts being outwards, with the top and upper half of the sheaves resting upon the inner ones. In this operation of laying the exterior layer, he first grasps a sheaf, and then, placing it close to, and somewhat upon, the sheaf last laid, he presses upon it with his hands and the weight of his body, and lifts himself forward, until he has placed his knees upon it; and then grasping another sheaf, he, in the same manner, places it in its position, and so moves on from sheaf to sheaf. He thus lays a layer of sheaves all around, and then a second layer, in the same manner, filling up, where necessary, the interior of the stack, until he has raised the whole nearly to the same level as the top of the upright sheaves before mentioned.

"Having completed the first part of his work, that is, having laid his outside layers, and filled up the heart, so that the whole may be nearly level, but with a slight dip from the centre outwards, he proceeds thus:—He lays his second course of sheaves all around, with their buts about 15 or 18 inches further back than those of the outside course. Having done this, he fills up the interior of the stack; but, in filling up the interior, he does not generally observe the same order of courses which he does in laying the outside layers; he merely packs the sheaves in a proper manner, so that they may fill up the whole interstices. He now lays an outside layer all around, with the buts outward, as before, and the ear-ends slightly elevated, by resting upon the buts of the last laid or inner course. Thus he proceeds, alternately laying the outside and the inner course, and filling, as he proceeds, the heart or interior, carefully preserving, as has been said, the dip of the sheaves from the centre outwards.

"Sometimes when the stack is very large, or the straw short, more than two internal courses are laid. The process, however, is the same. The different courses overlap, and the workman proceeds by laying the courses in succession upon each other, and filling up the heart.

"When the workman has carried his stack to the height of 12 feet, or more, he begins to contract it. But he first lays a course projecting a few inches beyond the outer course last laid. This is intended to form the eaves of the roof; but often this is dispensed with, and it is not essential.

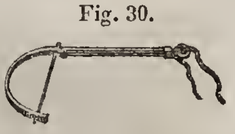
"After this he contracts the stack, each successive course of sheaves being laid more inwards. At the same time, the elevation of the centre is not only preserved, but increased, so that the sheaves may have an increased obliquity as the upper part of the stack is formed.

"When the workman has contracted the top to a platform of three or four feet in diameter, he rises from the position in which he had hitherto worked, and places a sheaf upright in the centre, and this he surrounds with sheaves standing in like manner upright, but with their tops inclining inwards, and leaning upon the centre-sheaf. This summit of upright sheaves he firmly surrounds with two or three turns of a straw-rope, the ends of which are sometimes fixed to opposite sides of the stack, so as to prevent the summit from being blown down.

"The stack is now in the form of a cylinder with a conical top. It is usual to make the diameter of the stack increase as it rises in height. This deviation from the perpendicular, however, should be very slight, as it tends to render the stack more apt to incline to one side.

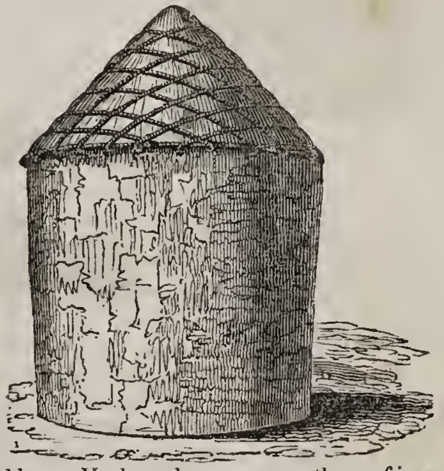
"The stack is now to be thatched, after it has subsided a little, and it is proper that a certain quantity of straw be in readiness for the purpose. The straw is formed into bunches, by drawing it out by the ends into handfuls: the short straw which is separated in this operation is reserved for other purposes, as forming the bottoms of the stacks, and partly also for thatching.

Fig. 30.



"Twisted straw-ropes are to be in readiness. They may be made by means of the simple instrument, Fig. 30. It consists of a handle of from two to three feet long, bent at one end like a bow, and having at the other a ring and swivel, through which ring a straw-rope is passed, which is tied round the waist of the worker. The straw to be twisted is fixed to a notch at the end of the bow, and gradually supplied by a person from a heap. The other worker, who may be a very young person, the work requiring no exertion of force, walks backward turning his bow round with one hand, until the rope is formed of the length required. The ropes thus formed are coiled upon the arm, and reserved for use.

Fig. 31.



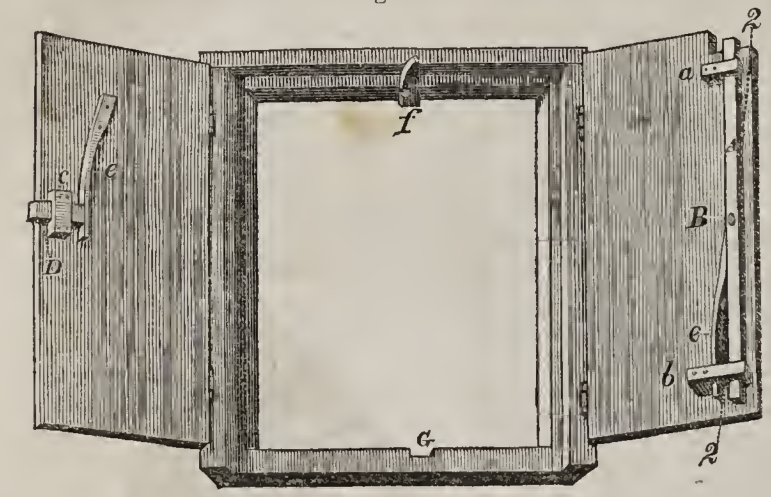
"The workman who thatches the stack stands upon the roof. The bunches of straw being handed or forked to him, he spreads the straw in handfuls all around the stack, laying successive layers until he reaches the top, the higher overlapping a little the lower; and he takes care, by working backwards, not to tread upon the straw already spread.—When he reaches the upright sheaves at the top, he lays a thick row of covering on, which may consist of short straw, which he draws to a point a the top, and makes tight with a thin straw-rope wound round it.

The straw is then fastened down by means of the straw-ropes already described. The thatcher stands upon a ladder aloft, so as to be able to reach the summit, while two assistants remain on the ground below, or are supplied with short ladders. He lays the ropes over the roof in a series at the distance from each other of 12 to 15 inches. They are passed obliquely over the roof, and fixed to, or wound round, another rope placed above the eaves, or below them, as in figure 31."

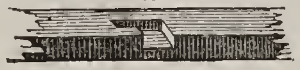
Conklin's Revolving Press Harrow—figured in the 2d No. of the current volume, promises to become very serviceable to the farmer, and for a purpose not originally anticipated. The object of the inventor was to obtain a machine to scarify old meadow and pasture grounds, for the purpose of destroying the mosses, pulverizing the surface, and covering seeds of the cultivated grasses. As a scarifier, for tillage lands, it is found highly beneficial—first, in superseding repeated ploughings; and, secondly, in saving for the crop, the fertilizing matters of the sod, in grass lays, which are turned up and wasted by a second ploughing. By its action upon an inverted sward, or upon a stiff clay, the surface is thoroughly pulverized, and a fine tilth is expeditiously obtained, for covering the seed. Our neighbor, C. N. Bement, has one of these machines in operation, and is highly pleased with its performance.

New Barn Door Fastening.—Thomas D. Burrall, Esq. of Geneva, who has invented and put in operation many excellent machines to abridge the labor of the farmer, has sent us a model of a barn door fastening, which combines simplicity, cheapness, strength and durability. We give a representation of it below, as shown with the doors open. *A*, is an upright bar, attached by a half inch bolt, or pin, *B*, which serves as a pivot, to one of the doors, near the edge, and is held in its place by brackets, *a b* at top and bottom, and the spring *c*. On the other door, is seen the slide latch or catch *D*, kept also in place by bracket *c*, and spring *e*. The latch may be six inches broad, and should be bevelled on the inner side. A knob for opening the door, is attached to the latch, and passes to the outside of the door, through which an opening is made for it to slide. Over the centre of the doors, is a catch *f*, firmly fixed, into which the upright bar *A*, fastens when the door is closed; and below it, in the sill, is a mortice *G*, which fastens the lower end of the bar.—When the doors are to be opened, the latch *D* is drawn back by means of the knob, and the door opens; and by pressing the foot or hand against the bottom of the upright bar *A*, on the other door, it is thrown into the position indicated by the dotted lines 2–2, and the second door opens. When pushed to, both doors become instantly fastened. A minute suffices to open and shut both. Six superficial feet of 1½ inch ash plank, will suffice for the bars, catch, brackets, and springs for a pair of doors, and the work can be done by any ordinary laborer. Mr. Burrall claims no patent for the invention.

Fig. 32.



G



Currant Jelly.—In reply to our correspondent *Delia*, who dates at Brookeville, Va., we give the following directions for making this jelly. Place the currants in a stone pot, without water, put the pot into a kettle of water, and simmer or boil the water till the currants settle into a mass. This is merely to express the juice readily, which being done, strain it through a woollen cloth, and put it into a clean kettle, and add one pound of sugar to every pint of juice. Let it heat moderately, till the scum has risen and is taken off; and when somewhat cooled, turn into tumblers, cover them with white paper, punctured with a pin, and set the glasses under cover where the sun may shine upon them. Jelly thus made *will not* ferment.

CORRESPONDENCE.

DIFFUSION OF AGRICULTURAL KNOWLEDGE.

My Dear Sir—I wrote you a short letter from Pennsylvania, on the subject of the sugar beet; in passing through Ohio, Kentucky, Indiana, Missouri, Illinois and Michigan, I have stated to many intelligent and wealthy individuals, the value of the sugar beet, and I am glad to inform you, that a general feeling prevails, that a new and important product is about to be introduced, which will be a source of vast benefit to our country. All that is now wanting, is information; when that is diffused, capital and enterprise are ready in abundance, to undertake the manufacture. I find that the good and enterprising everywhere, are deeply impressed with the importance of the universal diffusion of information that will tend to improve husbandry, education and temperance. Your excellent paper, the Cultivator, is becoming a mine of wealth to farmers—could each one be induced to subscribe for it, I will venture the opinion, that he would derive advantages over the cost, a hundred fold.

I have frequently forwarded a copy of our temperance papers to each post-master in the Union, with the hope of interesting them in the cause, and inducing them to act as agents. The consequence has been, they have, as a class, been among our most valuable friends, for procuring subscribers and transmitting money.

It is of such vast importance that the farmers in all parts of our country, especially in the new parts of it, should have your paper, that I wish you would forward one of your first numbers to every post-master in the United States, with a short address, calling attention to it, and soliciting each to act as agent. The low price of the Cultivator, its valuable contents, and the profits (if any,) derived from its subscribers, being entirely devoted to advance the general interests of agriculture, will commend it to universal patronage, when known and appreciated. For the expense of this distribution, you may call on me. I am, dear sir, respectfully yours,

Chicago, June 23, 1836. E. C. DELAVAN.

VIRGINIA HUSBANDRY.

Dear Sir—I enclose you five dollars, and request you to send the Cultivator from its commencement, to William Price, &c. It is pleasing to observe, that the Cultivator is so popular in this section, and I trust that it will be the means of doing much good among us. There must doubtless be much difference in the objects and the details of agriculture in the region for which the work was originally designed and ours; but the general principles of agriculture are the same every where. In this part of Virginia, we have much the advantage of you in climate, but our soil, on an average, originally thin, has been wofully abused, by the necessity which distance from market and bad avenues to it, have imposed on us, of making tobacco almost our only market crop. This weed is not a great exhauster of land, but requiring all the manure and most of the labor on a farm, that part of it occupied by other crops, which are great exhausters, must of necessity become poor. Distance from market, also, deprives us of the benefit of lime as a manure. This article generally sells at from $3 to $3.50 per tierce. There is probably no part of the United States farther removed from the facilities of procuring lime, and probably none in which lime is more needed by the soil. This defect may, posssibly, at some future day, be remedied, by rail-roads and the improved navigation of our streams. For some time to come, however, if we improve at all, we must endeavor to do it without the aid of lime. Under past agricultural management, our lands have been constantly deteriorating, and unless the course is changed, must soon arrive at that hopeful condition when they can get no worse. Under such circumstances, I see no hope for improvement, except from extra exertions to procure putrescent manures. These might be produced in greatly increased quantities, by cultivating root-crops on a greatly increased scale, and by other means of sustaining many more cattle than we generally keep; particularly by cultivating artificial grasses largely, which, while they would afford food for the stock, would protect the land from the sun and from washing, and would meliorate the soil, on the principle of convertible husbandry. That deficiency of lime which so peculiarly adapts our lands to the growth of tobacco, is accompanied by a great drawback in the culture of artificial grasses, from its excessive tendency to the spontaneous production of weeds. The most promising fields of young clover, are speedily overrun by sedge grass, stick-weed, sorrel, and a thousand etceteras. We need some *half weed, half grass*, which, on poor land, could contend with such things. Perhaps yarrow might be the thing.

We generally keep no more stock than we can squeeze through the winter on the offal of the grain crops. Any accidental surplus of cattle must either be killed in autumn as grass-beef, or die towards spring to afford leather from their skins. Few think of cultivating a crop especially for cow-food, and rare indeed is the man who makes express provision for feeding sheep. Were a few acres of our tobacco lands cultivated in roots, and the nakedness of all our idle lands hidden by artificial grasses, a great change would soon be perceived in the number and quality of our cattle, and in the fertility of our soil. It is moreover believed, that the increased quantity of manure resulting from such management, would operate as a poison on many of the weeds which are now such pests.

That our soils are well adapted to the culture of ruta baga, I have demonstrated, to my own satisfaction, by a successful trial, on a moderate scale, for a number of years. I intend to try it more largely this year, if the excessive wet weather will abate long enough for me to get the seed in the ground. I cultivated mangel wurtzel last year, on about the fourth of an acre, and succeeded to the astonishment of all who saw the crop. And here I should retouch the picture drawn above, of Virginia agriculture, by stating, that during the spring there was anxious inquiry for the seed of mangel wurtzel generally through the country, and that the demand could by no means be supplied. Indeed—many thanks to my friend Mr. Ruffin and yourself—there are strong symptoms of improvement in our husbandry, evinced by the greatly increased quantities of clover and other grass seed, brought from the north and sold by our merchants. Some of them, however, contain mischievous impurities, such as blue thistle, St. John's wort, ripple grass, &c. which thrive prodigiously in our soils.

My enthusiasm in the cause of agriculture, must be my apology for being tedious. My intention, when I commenced writing, was simply to mention the matter of business with which I began, and to ask a favor—it is this:—I know that an editor ought not to be expected to become the private correspondent of every obtrusive subscriber he may chance to have. But will you, in one line, recommend a person who would willingly become such? I wish to know more than I do about vetches, chicory, alsike clover, and many other matters. I received a few seed from a friend the last spring, under the name of Egyptian clover, much mixed with chicory and other things, which I never saw before. The clover put forth white blossoms soon after coming up, has, perhaps, as many blooms as leaves, and after the bloom falls, the seeds are retained in a reddish colored bur, somewhat resembling in shape the bur of the teasel. This may, possibly, be the alsike clover. It was, unfortunately, sown in very springy ground, and has been nearly drowned by wet weather. It is inclined to grow erect, and to branch but moderately, and that entirely above ground. I may wish for a friend in your region, who would be willing to answer inquiries about such matters, to attend to small agencies, in the way of transmitting small parcels of grass-seed, choice stock, &c. should I think proper to send for them. It has struck me that my professional brother, Dr. Beekman, might be the *man*. I leave this matter to you.[*]

Allow me now, sir, in tendering to you assurances of my highest personal respect, to associate therewith my warmest wishes that the Cultivator may find its way into every house in Virginia, and thus become a strong tie between two states, in danger of being dissevered in feeling, by papers of a very different description.

Your most ob't, &c. W. S. MORTON.

Near Farmville, Prince Edward, Va. 30th June, 1836.

ADVANTAGE OF ALTERNATING CROPS.

Mr. Buel—Feeling a desire to lend my aid in improving the condition of agriculture, I have attempted to write a few lines on that subject. It is painful to see the tardiness with which many advance in this cause; they continue to follow in the beaten paths of their fathers, and to pursue the same system, although they receive but a scanty remuneration for their labor. These remarks I think are peculiarly applicable to those who continue to apply their unfermented manure as a top-dressing to their grass ground. In order to see more clearly the error of their practice, let us enter into some estimates as to the profits they receive, in comparison with the profits received under a different system. We will suppose their annual product two tons of hay per acre, which is about the quantity from the acre in this vicinity, in a season; this, at $22 a ton,

makes		$44 00
Fall feed,		2 00
Income,		$46 00
Expense of cutting, drying, &c. a ton, say $5,	$10 00	
12 loads of manure at the barn, at $2 a load,	24 00	
Carting and spreading the same,	2 50	
Interest on land, allowing it worth $100 per acre,	6 00	
Expense on the acre,		42 50
Leaving a clear profit of		$3 50

or 9½ per cent on the land per acre.

Now let us estimate the advantage derived from applying the manure to corn ground, and will allow the land to be worth the same as in the preceding estimate.

24 loads of manure, at $2 per load,	$48 00
Carting and spreading,	5 00
Expense of raising and harvesting corn crop,	8 00
Interest on land,	6 00
	$67 00
60 bushels of corn, at $1 per bushel,	60 00
Loss, first year,	$7 00

Perhaps some will smile, as they look at the result of the first year, and say their system yields the most profit; but let us continue our system three years longer, and then look at the result:

2d year—Oats, say 40 bushels per acre, at 60 cents, the present price,		$24 00
Seed, sowing and harvesting,	$4 00	
The straw will pay for carting, thrashing, &c.		
Clover and herds grass seed, as we would advise they should be sown with the oats,	3 00	
Interest on land,	6 00	
		13 00
Gain, second year,		$11 00

3d year—Three tons of hay may be expected this year, from two mowings; this, at $18 a ton, amounts to		$54 00
Expense of cutting, drying, &c. $5 a ton,	$15 00	
Interest on land,	6 00	
		21 00
Gain, third year,		$33 00

4th year—Clover and herds grass, 2 tons at $18 a ton, amounts to		$36 00
Expense of cutting, &c. $5 a ton,	$10 00	
Interest on land,	6 00	
		16 00
Gain, fourth year,		$20 00

Average clear profit, $14¼ per year, or 20¼ per cent interest per acre yearly, which makes more than twice the profits per acre obtained by applying the manure to mowing ground.

Perhaps it may be said that the price put down for the manure is too high—if so, the profits would be still greater.

If my estimates are not correct, (they are estimates made from observation and practice,) I hope some of the friends of agriculture who are in favor of applying their manure to grass grounds, will point out my errors. Yours respectfully,

Willimansett, June 20, 1836. W. CHAPIN.

EDUCATION—FEMALE HABITS.

J. Buel, Esq.—When I take into consideration the philanthropic object and office of your paper, in calling up the instruction of past ages, and of diffusing the improvements of the present, I am compelled to tender my acknowledgment of its merits and usefulness. At a period when public and private patronage was almost withdrawn from the great subject of *Agriculture* in this state, you volunteered the high and arduous office of rescuing it from declension; and of instituting a medium of disseminating information at the cheap rate, which should be accessible to all those who have curiosity and interest.

I have read, with intense interest, your papers and recommendations on the education of youth, and on the improvements of roads. If some few of the older members of our community are wedded to their old opinions and habits, I would leave them undisturbed. But as it is a matter of necessity that the human mind should be always active, let us train the rising youth to the highest degree of perception, and necessarily of enjoyment. And if this patrimony should be ill received or misused, with stoic firmness, let us bear unmerited reproach. Let their attention be awakened to the most lively curiosity, and a fixed and inflexible determination to a single object of pursuit. This has guided all the *great men* of former days to eminence and usefulness. Vaccillation and irresolution are always abortive. Man requires the strong impulse of necessity, or the enkindling fire of curiosity, to bring his energies into operation, and preserve him from the enervating and debilitating influence of indolence.

I have sometimes been influenced or subjected to the restraint imposed by the pressure of business, and the selfish inducement of not going out of one's own concerns. But the grand progress of modern improvement is such, that a man of taste cannot refrain from going abroad, (whether viewed as the attainments of human intellect, or as the disclosures of *Almighty beneficence*,) to see the wonders of canals, rail-roads, the magic power of steam, husbandry, &c. &c. And a man of philanthropy cannot restrain the sentiment of *diffusion*—to extend these benefits to every son and daughter of *Adam*, who will receve them.

I have read in your paper the eloquent recommendations of the Rev. H. Colman; they are harmonious to my ear. I wish they may vibrate to the extremes of our common country.

While we are importing *Durham Short Horns* and *Saxony Sheep*,

---

[*] We have not heard of any experiments being made with either of these plants, except with the first, and the culture of that has not been persisted in. We tender our services to Mr. M. in the way asked, till our friend Dr. B. or some other better man than ourselves shall offer.—*Cond.*

I am gratified to see that you are importing Prussian School Systems, (the probable offspring of the energies of Frederick the Great.) Will we be so tenacious of improving our farm stock, and leave our children to the influences of the *moon*, *witches*, *ghosts and unlucky Fridays?*

You have said in your prospectus to the present volume, March No. you had something in reserve for the *Ladies*. I do not know what it is—but I have no doubt it will be acceptable, for kind hearts are surely good recipients. Doct. Rush, in his lectures, observed, "Our *Saviour* was never abused by a woman." I believe that could not be said of *Job*. It is stated, man was solitary in the *Garden of Eden*, without a help meet. It must assuredly be the worst degree of heresy, to pretend that *Supreme Benevolence* created woman to abridge the enjoyment of man.

The kindness of a woman is not only the highest delight of life, but it is the sweetest, softest and most soothing, in suffering disappointment and affliction. When we are forsaken, traduced, defrauded, calumniated, to have one warm-hearted bosom friend, to whom we can disclose, with whom we can advise and reciprocate—my *God*, what more can we ask? In sickness, how much soothing—in old age, how much devotedness. Look at the Indostan funeral pile!

Permit me now to suggest the consideration and disclose the observation, whether Fashion is not imposing on the females of the present day, the debilitating discipline of the yellow bird and canary bird? And is it not an abridgement of their enjoyment of life, and a deterioration of our offspring? All the foreign women who have come under my observation have stronger constitutions, and are habituated to more rugged exercise. There are tendencies and consequences in civilized life, of a hurtful character, which are apt to be unobserved or unheeded, in the crowd of concerns; and while mingled with the ten thousand delights of social life, become so amalgamated as to lose more of their original character, than of their baneful influence.

Without going into comparisons that might be odious, when man is lord and master of animals, I feel justified in the inquiry, where in the whole circle of *Natural History*, is the female decidedly marked by imbecility? Whence, then, the imbecility of the sternum and spine? requiring the support of whalebone, and the desperate constraint of laced stays? Whence this hurried respiration—this strong effort of the heart to burst its bands? which ever should be quiet, but when aroused by the imperative impulse of passion, affection, or what you may please to call it. *Nature* has ordered this thing in so *positive* a way as to render the penalty of violation so severe, as to awaken all the sympathies of the human heart! I have seen the exquisite painting of a shepherdess holding a crook, executed by a master painter, but not of modern date; indeed it did require a perfect pencil. I think some such crooks would be a better antidote against nervous affections than the best recommended patent nostrums.

Whence the delightful tints and tinge, and the full blushes of the opening rose? Is it by a seclusion from the sweet influences of the dawning day? by a sequestered seclusion from the genial radiance of light, and the benign influence of soft and sweet salubrious breezes? What delight can surpass the morning dawn and blushing rose? From whence arises the captivating, elastic, buoyant step? By reclining on a sofa? I would that maiden sweetness should grow up to matron kindness, fineness and firmness. And yet the fairest rose that greets the dawn, will wither, like a worthless weed.

Hence, let our aspirations rise,
To be renewed above the skies;
Our hold on life is by affection,
For nothing else is worth possession.

I feel some apprehension of being proscribed, but this is too fine a flower to cultivate in the shade—too fine a bird to be shut up in a cage. If there is any return to be rendered to those who are devoted to our pleasure, and solace our suffering, I trust your gallantry will not leave it unrequited.

Your reference to the improvement of roads, leads to the inquiry, who can be indifferent to the importance of this subject, on considering that the social relations, even of neighbors, are, in many instances, severed by impracticable roads. Who does not perceive that a good soil is worthless, and industry labor in vain, without a market? And of what advantage is a market that is inaccessible? To this loss of precious time and sacrifice of comfort and sociability, let us add the long list of heart-rending accidents.

The æra which most emphatically establishes the distinction between ancient and modern men and manners, is the sublime, exquisite art of *Printing*—and yet there are some so bigoted as to be disposed to shut up this grand avenue of instruction, delight and reciprocity. If it be to conceal their own defects, let us leave them in their own native darkness. Agriculture shall not be so debased, as to reject what advances every other occupation of man. There is no science, no art that does not require the test, and must be subjected to the skill of the operative. But who can sustain the *dogma*, that simple manipulation alone is sufficient? Who can bear the reproach of the very dirt under his feet, on a good soil, from bad management? And who might not be priviledged to exult, on the improvement of a poor one?

Your paper is necessarily limited to the purpose of exciting and sustaining an interest in agricultural pursuits, and like an index, ☞ pointing to the great sources of information. And he who refuses or neglects to use it, acts as inconsistently as one who refuses or neglects to use a *key* to unlock a chest which he knows to contain immense treasure.

Would this western continent have been so discovered? "Experientia docet omnia." How common is the reminiscent remark and regret; if we were to live our lives anew, we would do this and that otherwise. Why not, then, avail ourselves by reading, of the experience and observation of others, and add it to our own acquirements? The very reason why some will not get information or knowledge, is the very reason why they will not receive it. F.

GRAFTING AND BUDDING FRUIT TREES.

Friend J. Buel—The Cultivator had been published more than a year before I knew any thing about it. When I casually saw one of the numbers I became a subscriber at once, and have ever since perused its columns with interest, and trust with profit also; and I doubt not but there are hundreds now who would be added to the list of your subscribers, if they knew of the work and its intrinsic value.

I had at first thought of only writing you some observations on grafting and budding, and on the propagation of new varieties, but the subject seemed so closely connected with the culture that I determined on presenting the following, which, I think, might enable any one, with a little care and observation, to raise apple trees* for his own orchard of a superior quality.

Grafting and budding are very simple operations. With only a few minutes instruction, a person may perform either, and in one or two days practice he may perform it dexterously. What a pity then that so much ignorance prevails on a subject of so much import to our health, convenience and comfort.

I have kept a nursery for several years; I was not "bred" to the calling, nor have I received much personal instruction.

If I should be found capable of adding anything to the common stock of knowledge on this subject, mine, whatever I possess, has been principally obtained in the field of practical experiment—so I think this communication cannot justly be called "book" horticulture.

1st. Sowing culture, &c.

In the present state of agricultural knowledge, it is almost superfluous to state, that the soil should be rich and highly manured. I think that unfermented manure, deeply ploughed under in the fall, before sowing, whether on sward or otherwise, answers very well. As the seeds do not vegetate till in the spring, the manure will become incorporated with the earth, and the earth also pulverized by the frost, afterwards rotted manure, coal ashes and wood ashes, whether leached or unleached, may be most suitable.†

In the latter end of the 10th month, (November) is the time I prefer sowing, which may be done in straight parallel rows, three feet and a half apart, and two inches deep. If too thick they may be thinned to about six inches; if too thin, the vacancies may be filled up by transplanting them soon after they come up, dirt and all, like cabbage.

The seed of apples made late in cider, sown in the pumice, will answer equally well. If sown in a narrow straight trench, thickly spread and covered, not too deep, or mixed with a little earth and exposed in heaps they will keep till spring: in which case they should be sown as early as the frost goes out of the ground. I have lost both apple and thorn sowings even when the seed was duly frosted for want of this precaution.

---

* My remarks are principally confined to the culture of apple trees, yet with little variation would apply to other fruit trees.

† I think Coxe states it as an experimental fact, that trees in an orchard grow better by being manured with creek mud than stable manure. Why not so in a nursery.

I advocate the level cultivation. Weeds should not be suffered to grow to be pulled out by hand, but the earth frequently stirred and kept loose with a narrow hoe or rake. This saves time, as they can be gone over with much more expedition than when suffered to get foul, and that it promotes their growth must be obvious to all. If it be intended to graft or bud them at the ground, this should be done when they are two years old.

GRAFTING.

The mode of grafting which I prefer, is technically called cleft grafting, and is that most commonly practised in nurseries and in top grafting also. As my practice has some peculiarities in its mode, I shall aim at a description of it. The stock may be cut off with an oblique cut; a vertical or perpendicular cleft is now to be made across the slope, and say an inch and a half deep, with a butcher knife, a new one is best that it may be sharp and thin, in order that the stock may be slit apart rather than cleft, which leaves it much smoother to receive the pen; which latter must now be cut in a perpendicular direction in the form of a wedge; the upper part of this wedge must be cut with a shoulder, but inasmuch as it should be made with a single cut downward, on each side, with a common penknife; the shoulder will necessarily be of a bevel form, and somewhat scolloping. The part to be inserted, however, should be two inclined planes, coming together to a point, and a little the thickest on the outside, and the slit may now be held open by pressing the thumb backward against the inside of the slope on the long side, and the pen may be pushed downward as far as the shoulder will permit, in such manner that the inner bark of the stock, and that of the scion may meet exactly together. If the stock does not hold the pen firmly, it may be tied with woollen yarn or bass shreds. The earth may now be drawn round the scion and pressed firmly about it. If the cement was applied according to Hopkins' recommendation, (see Cultivator, vol. iii. p. 39,) the success would probably be more certain; and for top grafting, clay or cement of some kind is indispensable. McMahon says, "the best time for grafting is just when the buds have swollen and are ready to burst," and this accords with my experience.

BUDDING.

I shall now proceed to the consideration of budding, and shall describe a mode which I think a more expeditious one than any I have ever seen described in print.

Take the scion of the kind intended to be propagated, make a transverse cut pretty close above the bud into the wood, about half way round the scion, then from each extremity of this cut let cuts be made obliquely, so as to come together about half an inch below the bud, and enclosing the bud in the form of an inverted cone.—Several may be done ready for use, and may readily be plucked off the scion, if it be in good order for budding, by taking a close hold of the footstalk of the leaf. Then fixing on a smooth part of the stock to be budded, make a horizontal cut quite through to the firm wood; from the middle of this transverse cut make a slit downward, of a length to suit the bud, being careful not to cut too deep; then taking a bud from the twig, which has been previously cut round, and holding it in the left hand, proceed to separate the bark from the stock clean to the wood on each side, by thrusting the point of the knife into the edges of the bark within the slit, being careful not to wound the cambium beneath it. The bark being thus raised for the admission of the bud, slip it directly down until the top of the shield comes just below the first made transverse cut, and enters into its place. The whole may now be bound round with bass or woollen yarn, from the bottom of the slit to the footstalk of the leaf, and on it a little to press the bud close to the stalk. In three or four weeks the bandages may be removed. In the spring, at the rising of the sap, it may be headed down. The sprouts must be rubbed off until the bud starts.

As a considerable time elapses after heading down before the bud starts, during which the exposure of the crown, and particularly when large, frequently occasions gangrene, very injurious to the tree.

Hence I recommend that the stock be cut off, say a hands breadth above the bud; these may be shortened in June, within an inch or less of the bud; let this not be neglected. If the stump be kept alive until the bud grows of a size large enough to keep up a free circulation of sap, all is safe, and the bud itself adheres in its new place with as much life as it grew on its parent twig, and when inserted on stocks not too large, and judiciously managed, makes a wound incomparably less than any other mode of grafting. The proper scions for obtaining buds from, are the young thrifty shoots at the extremities of the branches of a young and thrifty tree. If the earth has been kept loose about it, so much the better. I here repeat your observation, that "both the stock and the scion should be in a state of active growth, and the more vigorous the better, when the process of budding is performed." The buds to be prepared are the most prominent; small sunken buds are slow to vegetate. Let the twigs be divested of their leaves, but not of their leaf stocks. Whilst using keep them constantly moistened or immersed in water, at least their but ends. The operation may be performed very well with a penknife of the ordinary kind, the blade should be thin and keen and the point sharp.

Apple trees may be budded from the 20th of June until the 20th of September; but I should judge from the 10th of August to the 10th of September, the best time.

I have now a lot of trees, some of which were grafted and some budded on stocks of the same age and similar, on measuring them this day (28th of June) a majority of the budded trees exceeded two feet, and some near three feet, and one over three feet—whereas, of the grafted, one alone come up to two feet. I have made similar experiments at different times, and those budded have almost invariably excelled.

Some object to budded trees on the ground that they will not bear as early by two or three years, as grafted ones. If such be the fact, I should suspect the bearing to be premature, and might be occasioned by nursery transplanting, winter grafting, &c. Whereas, budding to be successful, must necessarily be performed in fixed, and I may almost say, vigorous stocks. Premature bearing is the forerunner of premature decay.

A few remarks on pruning and transplanting will close this part of the subject, but which, for want of time, I reserve for a future number. SOLOMON PHILLIPS, Jr.

Brownsville, Fayette Co., Pa., July, 1836.

P. S. I would be gratified by seeing something in the Cultivator about the culture of peach trees.

SHEEP HUSBANDRY.

THE SHEEP.—(*Continued from page* 87.)

THE PROPERTIES OF WOOL.

A consideration of the most important properties of wool, now taken in a very general way, and to be hereafter applied to the different breeds of sheep, cannot be better introduced than in the words of one to whom the agriculturist, whatever department of husbandry may chiefly occupy his attention, is much indebted. He is speaking of the size of the fibre, or the fineness or coarseness of wool. "Fine and coarse," says he, "are but vague and general descriptions of wool; all fine fleeces have some coarse wool, and all coarse fleeces some fine. I shall endeavor, for the information of my readers, to distinguish the various qualities of wool in the order in which they are esteemed and preferred by the manufacturer. First, fineness with close ground, that is, thick-matted ground. Second, pureness. Third, straight-haired when broken by drawing. Fourth, elasticity, rising after compression in the hand. Fifth, staple not too long. Sixth, color. Seventh, what coarse is in it to be very coarse. Eighth, tenacity. Ninth, not much pitch-mark: but this is no other disadvantage than the loss of weight in scouring.

"The bad or disagreeable properties are—thin, grounded, toppy, curly-haired, and, if in a sorted state, little in it that is very fine; a tender staple, no elasticity, many dead white hairs, very yolky. Those who buy wool for combing and other light goods that do not want milling, wish to find length of staple, fineness of hair, whiteness, tenacity, pureness, elasticity, and not too many pitch-marks." These supposed good and bad qualities will not be taken in the order here enumerated, for the propriety of some of them may admit of doubt; few, however, will be entirely omitted.

FINENESS.

That property which first attracts attention, and which is of greater importance than any other, is the fineness of the pile—the quantity of fine wool which a fleece yields, and the degree of that fineness. Of the absolute fineness little can be said. It varies to a very considerable degree in different parts of the same fleece, and the diameter of the same fibre is often exceedingly different at the extremity and the centre. The micrometer has sometimes indicated that the diameter of the former is five times as much as that of the latter; and consequently, that a given length of pile taken from the extremity would weigh twenty-five times as much as the same length taken from the centre and cleansed from all yolk and grease.

That fibre may be considered as coarse whose diameter is more than the five-hundredth part of an inch; in some of the most valuable samples of Saxony wool it has not exceeded the nine-hundredth part of an inch; yet in some animals, but whose wool has not yet been used for manufacturing purposes, it is less than one-twelve-hundredth part of an inch.

The fineness of the wool differs greatly on the different parts of the sheep. That running down the side of the neck and covering the shoulders, the ribs, and the back, is the finest; the next covers the superior part of the legs and the thighs, and extends up to nearly the haunch and the tail; and a still inferior portion runs along the upper part of the neck, the throat, the breast, the belly and lower part of the legs. There is considerable variation in this respect in different breeds, and in individuals of the same breed; and, although a fleece, taken generally, may be said to be adapted to a particular use, yet a portion of it may be employed in the manufacture of a much more valuable article; and at the same time a greater quantity will be thrown aside as not sufficiently fine for the originally intended purpose.

THE WOOLSTAPLER.

This is the business of the woolstapler,—the middleman between the breeder and the manufacturer. He purchases the fleece, and occasionally sells it in the same state, but oftener *assorts* it; dividing it into different parcels, according to their degree of fineness principally, or the possession of some property which fits it for a certain manufacture. The sorter, who ought to have a delicate sense of touch and a quick eye, has several baskets around him, distinguished, at least in the mind's eye, by a certain number according to the fineness of the staple, and into which, with a rapidity that would surprise the inexperienced observer, and with an accuracy that can seldom be disputed, he divides the wool. There are seldom fewer than six divisions, and sometimes more than double that number, according to the quality of the fleece, or the expected demand for wools of a certain kind. The manufacturer, who knows precisely what wool will suit his purpose, and to whom the remainder would be useless, is thus enabled to obtain from the stapler, without trouble or risk, the quantity and the sort that he requires.

The short wool fleeces are usually distributed into ten parcels. *The picklock*—as its name, the picked locks, would imply—is the very best and choicest wool of the kind, and many fleeces of inferior wool are sometimes assorted before any great quantity is thrown into this basket. *The prime*, an excellent wool, and but in a slight degree inferior to the first. The two next divisions, *the choice* and *the super*, are good wools, but the fineness or the trueness of the staple gradually decreasing. The greater part of a good *Down* fleece would, on assortment, be chiefly thrown into one or the other of these compartments, but some proportion even of the best would find its way into the baskets yet to be mentioned. *The head*, this title either indicates the part of the sheep whence the wool is usually procured, or that it is at the head of the inferior sorts. The sixth division is—*the downrights*, an honest, sound wool; but that is all that can be said about it. Next comes *the seconds*—the best of the wool from the throat or breast. The eighth is—*the abb*, a disputed and unintelligible term, meaning a still inferior wool. *The livery*—principally the skirtings and edgings, and *the short coarse* or *breech wool*, that which comes from the breech of the animal.

THE INFLUENCE OF TEMPERATURE.

Various causes affect the fineness of the pile; and temperature, if not the most powerful of them, deserves more attention than has been paid to it. It has already been observed, and it is a matter of common remark, that the extremities of the wool, and, frequently, those portions which are near to the root, are larger than the intermediate parts. The extremity of the fibre has generally the greatest bulk of all. It is the product of summer, soon after the shearing time; when the secretion of the matter of wool is increased, and when the pores of the skin are relaxed and open, and permit a larger fibre to protrude. The portion near the root is the growth of the spring, when the weather is getting warm; and the intermediate part is the offspring of winter, when, under the influence of the cold, the pores of the skin contract, and permit only a finer hair to escape; while, probably, some of the cutaneous glands concerned in the growth of the fibre cease to act.

If, however, the animal is well fed, the diminution of the bulk of the fibre will not be followed by weakness or decay, but in proportion as the pile becomes fine, the value of the fleece will be increased; but if cold and starvation should go hand in hand, the woolly fibre will not only diminish in bulk, but in health and strength and worth.

The variations in the diameter of the wool in different parts of the fibre will also curiously correspond with the degree of heat at the time the respective portions were produced. The fibre of the wool, and the record of the meteorologist will singularly agree, if the variations in temperature are sufficiently distant from each other for any appreciable part of the fibre to grow.

It will follow from this, that the natural tendency to produce wool of a certain fibre being the same, sheep in a hot climate will yield a comparatively coarse wool, and those in a cold climate will carry a finer, but at the same time a closer and a warmer fleece. In proportion to the coarseness of the fleece will generally be its openness, and its inability to resist either cold or wet; while the coat of softer, smaller, more pliable wool will admit of no interstices between its fibres, and will bid defiance to frost and storms.

The natural instinct of the sheep would seem to teach the wool-grower the advantage of attending to the influence of temperature on him. He is evidently impatient of heat. In the open districts and where no shelter is near, he climbs to the highest parts of his walk, that if the rays of the sun must still fall on him he may nevertheless be cooled by the breeze; but if shelter is near, of whatever kind, every shaded spot is crowded with sheep.

Lord Somerville says, "The wool of our Merino sheep after shear-time is hard and coarse to such a degree as to render it almost impossible to suppose that the same animal could bear wool so opposite in quality, compared to that which had been clipped from it in the course of the same season. As the cold weather advances, the fleeces recover their soft quality." Enough will be said in the course of the work respecting the duty and the propriety of giving these useful animals, when placed in exposed situations, some shelter from the driving storms of winter; and the alteration in the fibre of the wool shows that it would also be advisable to provide the flock with a shade and defence against the fervid rays of a meridian sun in the summer-months.

A writer of high authority thus expresses himself: "Sheep carried from a cold to a warmer climate soon undergo a remarkable change in the appearance of their fleece. From being very fine and thick, it becomes thin and coarse; until at length it degenerates into hair. Even if this change should not take place to its full extent in the individual, it will infallibly do so in the course of one or two generations. The sheep that we see covered with hair are not therefore in reality a different species from those that are woolly, nor is wool in its nature specifically different from hair—it is only a softer and finer kind of hair. The effect of heat is nearly the same on the hairs of other animals. The same species that in Russia, Siberia, and North America, produce the most beautiful and valuable furs, have nothing in the warmer climates, but a coarse and thin covering of hair."—*British Husbandry.*

EXTRACTS.

ON THE USE OF LIME AS A MANURE.—By M. Puvis.

Translated for the Farmers' Register from the *Annales de l'Agriculture Francaise*, of 1835.—*(Continued from page 85.)*

FLEMISH LIMING.

13. The use of calcareous manures in the department of the North, as in Belgium, appears to be as old as good farming. It is now much less frequent in Belgium. The ancient and repeated limings have, as it seems, furnished to great part of the soil all that is necessary to it, for the present. But the department of the North still receives lime, marl, or ashes, every where, or nearly so, where lime is not a component ingredient of the soil. They distinguish in this country two kinds of liming. The first [*chaulage foncier*] consists in giving to the soil, every 10 or 12 years before seed time, four cubic metres, or 40 hectolitres of lime to the hectare.* They often mix with the slaked lime, ashes of bituminous coal, or of peat, which enter into the mixture in the proportion of from a third to a half, and take the place of an equal quantity of lime. The other mode of liming [*chaulage d'assolement*], is given in compost,

---

* 46 bushels to the acre, English or American measure.—Tr.

and at every renewal of the rotation, or upon the crop of spring grain. It is also in regular use in this country, still more than in Belgium, upon the meadows on cold pasture lands, which do not receive the waters of irrigation. It warms the ground and increases and improves its products. The older the compost is, the greater its effect, which lasts from 15 to 20 years, at the end of which time the dressing is renewed.

14. The limings of Normandy. the most ancient of France, are kept up in the neighborhood of Bayeux, while elsewhere they aro forbidden in the leases. however, now they go over all the surface which has need of them; but in place of being applied immediately to the soil, as in the ancient method, the lime is almost always put in compost.

LIMING OF LA SARTHE.

15 Of the mode of using lime, that of La Sarthe seems preferable. It is at once economical and productive, and secures the soil from all exhaustion. It is given every three years, at each renewal of the rotation, in the average quantity of 10 hectolitres to the hectare,* in compost made in advance, with seven or eight parts of mould, or of good earth, to one of lime. They use this compost on the land for the autumn sowing, and placed alternately with rows of farmyard manure. This method, of which the success is greater from day to day, is extending on the great body of flat argilo-silicious lands, which border the Loire ; and it would seem that this method ought to be adopted every where, on open soils that permit surplus water to drain off easily.—On very moist soils the dose of lime ought perhaps to be increased.

We would desire much to inculcate with force the suitableness, and eminent advantages, of using at the same time lime and [alimentary] manure. Here they do better still, in using at the same time a compost of lime with earth and dung. In addition, during the half century that the Manceaux have been liming, the productiveness of the soil has not ceased to increase.

16. The countries of which we have spoken, are those of France in which liming is most general. However, more than half the departments, I think, have commenced the use, and in a sixth, or nearly, it seems to be established. Doubtless, the first trials do not succeed every where. There is required a rare combination of conditions for new experiments, even when they have succeeded, to induce their imitation by the great mass. Still, successful results are multiplied, and become the centres of impulse, from which meliorations extend.

ENGLISH LIMING.

17. The English limings seems to be established upon quite another principle from that of France. They are given with such prodigality, that the melioration upon the limed soil has no need to be renewed afterwards. Whilst in France we are content to give from a thousandth to a hundredth of lime to the tillable soil, from 10 to 100 hectolitres to the hectare, they give in England from one to six hundredths, or from 100 to 600 hectolitres to the hectare. The full success of the method of our country might make us regard the English method as an unnecessary waste. It seems that they sacrifice a capital five, six, ten times greater, without obtaining from it a result much superior ; and that without lavishing [alimentary] manures also afterwards, the future value of the soil would be endangered in the hands of a greedy cultivator.

We will not urge the condemnation of a practice which seems to have resulted in few inconveniencies. The abundance of alimentary manures which the English farmer gives to his [limed] soils, has guarded against exhaustion : and then, in very moist ground, they have doubtless, by the very heavy liming, made the soil healthy, and its nature seems modified for a long time to come ; and such kinds, and where *humus* abounds, will take up a heavy dose of lime, and, as it seems, always without inconvenient consequences ; there is then formed there the *humate of lime* in the greatest proportion, and we shall see that this combination is a great means of productiveness in the soil.

SURFACE LIMING.

18. In Germany, where liming and marling, like most other agricultural improvements, have recently made great advances, besides the ordinary modes of application, lime is used as a surface dressing. They sprinkle over the rye, in the spring, a compost containing 8 to 10 hectolitres of lime to the hectare, fifteen days after having sown clover. Also on the clover of the preceding year, they apply lime in powder, which has been slaked in the water of a dunghill, the dose being less by one half ; the effect upon the clover and the following crop of wheat is very advantageous.

In Flanders where they use lime mixed with ashes, it is especially applied to meadows, natural or artificial, and the application is then made on the surface.

BURNING LIME.

19. The burning of lime is performed with wood, with pit coal, or with peat ; in temporary kilns, or furnaces, in permanent, or in perpetual kilns. It is burned in many places most economically with coal, but it is not so good a manure as the lime burned with wood, because, as it seems, of the potash contained in the latter case. There are but few places in which peat is used for this purpose ; however, in Prussia they succeed with three-fourths peat and one-fourth wood. It is, doubtless, a very economical process, and the *Societe d' Encouragement* has given in its transactions plans of peat kilns; but I know not whether the operators who received prizes for their use have continued the practice.

Temporary kilns admit of the burning of a great quantity of lime ; but the permanent kilns burn it with most economy of fuel In the first, 5 quintals of wood burn 4 quintals, or one ton, or 2½ hectolitres of lime—and in the others, the same quantity of wood will suffice for 6 quintals or 3½ hectolitres. But in the permanent kilns such is the expense of construction and repairs, that they cannot be justified except when kept in frequent use. Coal burns from three to four times its bulk of lime—the shape of the kiln, the kind of limestone, and that of the coal, making the difference Hydraulic lime is calcined more easily than the common [*chaux grasses*]. Egg-shaped kilns for coal seems to be preferable to the conical, which are more generally met with.

PRECAUTIONS TO BE USED IN LIMING.

20. Whatever may be the method adopted for using lime, it is essential that, like all calcareous manures, it should be applied in powder, and not in a state like mortar—and upon the earth when not wet. Until the lime is covered up finally, all rain upon it ought to be avoided, which reduces it to paste or to clots : and this injures its effect greatly, and even more than reasoning can explain. It ought not to be placed except upon soil, the surface mould of which drains itself naturally [by permitting the water to pass through.] On a marshy soil, unless the upper layer has been well dried, or in a very moist soil, from which the surface water does not sink or pass off easily, the properties of lime remain as it were locked up, and do not make themselves seen, until, by new operations, the vegetable mould has been drained and put in healthy condition.

On an argillaceous and very moist soil, the use of marl, which is applied in great quantities, is preferable to that of lime, because it can have a more powerful effect in giving the deficient health to the surface mould. On soil of this kind, a deep ploughing is a preliminary condition, essential to the success of either liming or marling : because in increasing the depth of the tilled soil, we increase also the means of putting the surface into healthy condition.

21. To secure the effect of lime on the first crop, it ought to be mixed with the soil some time before the sowing of the crop : however if it is used in compost, it is sufficient that the compost be made a long time previously.

Lime, whether alone or in compost, spread dry upon the soil, ought to be covered by a very shallow first ploughing, preceded by a slight harrowing, in order that the lime, in the course of tillage, may remain always, as much as possible, placed in the midst of the vegetable mould.

Lime, reduced to the smallest particles, tends to sink into the soil. It glides between small particles of sand and of clay, and descends below the sphere of the nutrition of plants, and stops under the ploughed layer of soil : and when there in abundance, it forms by its combinations a kind of floor, which arrests the sinking water, and greatly injures the crops. This is an inconvenience of lime applied in heavy doses, and is hastened by deep ploughing.

VARIOUS QUALITIES OF LIME.

22. It is necessary for the farmer to know the nature of the lime which he uses. It may be pure, or mixed with silex, clay, or magnesia. *Pure lime* is the most economical, the most active, that which can produce the most effect in the least quantity.

Silicious limestone is used in great quantity. The lime from it receives, as does the foregoing, the name of *hot lime*, and there is little difference in the application, except that more of the latter is wanting.

Argillaceous lime is the same as the hydraulic lime, or the *poor lime* of builders. It appears that the first two kinds are more favorable to forming grain, while the latter favors more the growth of straw, grasses, and leguminous crops. It is better for the improvement of the soil, but a heavier dose of it is required.

Magnesian lime acts very powerfully, but exhausts the soil if given in a large dose, or if it is not followed by alimentary manure in abundance. It has exhausted some districts in England, and entire provinces of America,*and it is to this kind that seem due most of the complaints against lime.

By chemical processes the farmer may make himself sure of the nature of the lime which he uses.

Pure lime is commonly white, and is dissolved, without any thing being left, in nitric or muriatic acid.

Silicious lime is often gray, and leaves a sandy residue [after solution], which is rough to the touch.

Argillaceous lime is obtained from stones which have a clayey odor and appearance : it is commonly yellow, and leaves, after the solution, a residue which is mostly an impalpable powder [*et qui prend en masse*], which may be formed into a mass when wet.

Magnesian lime is made from stone commonly colored brown or pale yellow ; it forms a white cloud in nitric acid, diluted with water, and used in less quantity than sufficient for saturation.

OF SECOND LIMINGS.

23. When the lime field returns to the state in which it was before the operation, when the same weeds re-appear, and the crops lower in product, it is time to renew the application of lime. It may be conceived that the time of the second liming depends on the amount given in the first. When the dressing has been light, it is necessary, as is done by the Flemings and the Manceaux, to recommence entirely, or to the extent of the first dressing : when it has been heavy, the next may be diminished by one-half. Besides, in this matter we should take counsel of the state of the soil and of experience, because there are some lands which demand, and can use heavier doses of lime than others.

PICKING, OASTAGE, AND BAGGING OF HOPS,

are the operations which close the culture of the hop, which begins "to bell," or show the seed-vessel, some time in August; and if the weather prove favorable, it will be ripe by the end of the month, or the beginning of September. When the seed begins to change from a pale straw-color to a light brown, to emit a fragrant smell, to feel firm, and to be easily rubbed to pieces, they are signs which indicate its having arrived at maturity, and being ready to be gathered.

---

* 11½ bushels to the acre.—Tr.

* The author has been deceived by exagerated accounts of injury from liming in America. It is probable that wherever it occurred, it was caused by the usual ignorance of the action of lime : from erroneously considering it as alimentary, and directly fertilizing manure, and after applying it, wearing out the soil by continued grain crops. Such effects are spoken of by Bordley.—Tr.

As a preparation for the gathering of the hops, strong frames of wood, called "bins," or "cribs," about nine feet long and four feet wide, are placed in different parts of the plantation, fixed upon legs three feet high; thus affording room for three or four pickers on each side, who, together with the man who collects the poles, are called a "set," and deposit the hops, when picked, in a coarse cloth, which is hooked to the insides of the frame so as to form a large bag in the centre.

The bine is first cut about two or three feet above the ground, much lower being considered injurious to the root, by the profuse bleeding which it occasions, and the pole is then wrenched from the earth by means of what in Kent is called a "hop-dog." This instrument is constructed of a strong, tapering stick, near three inches in diameter, and about five feet long; at the distance of nearly a foot from the larger end of which a small bar of iron, of about a foot long, is clenched; and being bent in the middle into an acute angle, the inside is roughened by the smith into something like teeth, which, when fixed upon the lower end of the pole, as it were, bite and hold it fast.

The poles are then laid horizontally across the frames, and two are usually given to one set; but smaller frames or baskets are also very commonly used, and it is then customary for one woman to engage a basket for herself and family. The price of payment varies according to the quantity grown, and is often not named until after the picking. Upon an average growth the pay is about 10*d.* the basket of five bushels; and a tolerable good picker will earn 2*s.* a day. The number of bushels picked by each set being kept by means of the double-tally.*

The weather deemed most favorable for picking is that which is neither very sultry nor moist; for if the sun be very hot and scorching, it is apt to shrivel and discolor the hops before they can be gathered off the poles; and if the morning be dewy, those which are picked in a damp state become musty. To prevent injury from the sun, the pole-pullers therefore take down no more than the pickers can strip in a short time; and if it be necessary to begin the picking before the dew is evaporated, the pole is shaken to and fro, in order to throw off as much of it as possible. As it always happens that the hops do not ripen at the same time, neither do they all run of one quality upon the same bine. The Farnham planters, who are particularly attentive to the maintenance of the long and well-established credit of their hops, not only set out all those that are fresh ripe for the first gathering, but make such distinctions in the appearance of their respective qualities as in their judgment seems most proper, so as to assort them into at least three different parcels, each according to their separate value. It is their practice, therefore, "to begin at the bottom of the pole, and to pick the hops, one by one, without bunches, long-tails, or leaves. Those that are just of the proper degree of ripeness, and are full and fair in their appearance, are first gathered, and put by themselves into the bin-cloth: such as are rather inferior in quality, or not exactly taken at the proper degree of ripeness, are of the second sort, and are likewise put by themselves in a basket. As, however, with the Farnham planters, hops that are under ripe are more esteemed than such as are over-ripe, the second sort takes in only the greenish hops: such as are brown and over-ripe are the third sort; and if the grower is very nice, a fourth basket is set for such as are defective in their form, or have received a check during their growth."

It is of the greatest consequence that the hops should be dried as soon as possible after they are picked, since, if they are kept long in the baskets in which they are brought from the grounds, they are apt to heat and spoil: the hops picked in the morning are therefore carried to the "oast," or kiln, at noon.

The *operation of oastage* is one of great nicety, for the strength and flavor of the hop are extremely volatile. The oast is nearly similar to a malt-kiln, and the hops are laid in parcels of 25 to 30 bushels, about five or six inches thick, upon a hair-cloth. The kiln having been previously heated, the temperature is regulated to one uniform but moderate degree of heat, in order that the hops may not dry too fast, and is kept at that degree until the upper part of the heap appears to have felt the fire; when, the lower part being then considered dry, the heap is turned; but, before that is done, the heat should be somewhat lowered, and restored when the turning has taken place. The thickness of the heap must depend upon the state of the hops, for, if they be full of moisture, they should be laid upon the kiln very thin, and a less degree of heat should be applied, or otherwise the steam arising from them will make them cake, or run into lumps. They take, in general, about ten or twelve hours in the drying. A fourteen feet kiln will therefore dry in the twenty-four hours 200 bushels of hops from the bines, or about 350 lbs. of dry hops; that is to say, at two dryings, for the men work all night. The fuel usually employed is either coke or charcoal, as being the most secure from communicating any smell which might injure the delicacy of the flower.

When sufficiently dry, the hops are shovelled to the upper floor of an adjoining store, called the "stowage-room," in which they are bagged.

The *bagging for market* does not take place until some days after the hops have been carried to the store-room, as from the extreme state of brittleness in which they are when taken from the kiln, they would be broken if immediately handled, and the sample would be thus materially injured. They are therefore laid in heaps upon the floor, in order to give them that degree of toughness and tenacity which they acquire by a moderate degree of sweating. They are then put either into bags or pockets. The first picking, being generally of the brightest colour, are usually put into the pockets; and the late pickings, from being brown, are packed in bags of about seven and a half feet in length, and eight in circumference, which are universally of 2½ cwt., while the weight of the pockets is only 1¼ to 1½ cwt.: that of the bagging itself is 25 lbs. The mode of bagging is as follows:—

A circular hole, covered by a trap-door, and sufficiently large to admit the mouth of a hop-bag, is made in the floor of the stowage-room. A few hops are tied tight in the lower corners of the bag, in order that, when full, they may be lifted and removed with ease. A hoop, rather larger than the circumference of the hole, is used to stretch out the bag, by means of hooks on the outer side of it, the inner side of the hoop, when the bag is let down into the hole, either resting on the floor, or on a frame of wood made over it. When the bag is thus stretched out, and let into the opening, the "feeder" throws down a few shovelfuls; and the "bagster," descending into the bag, with flat shoes, or leathern socks on his feet, treads the hops regularly and carefully down, especially towards the sides. More hops are then thrown down, and closely pressed, until the bag is filled: the tighter and closer the better, for the firmer they are packed the longer will they keep. The hoop is then loosened, the bag is let down to the lower floor, more hops are tied into the upper corners, and it is sowed up as closely as possible, the whole operation being generally completed within an hour.—*British Husbandry.*

PREPARATION OF WOAD CAKES.

The manufacturer of woad cakes should avoid cutting the leaves of the plant, till the period when they are richest in indigo; this substance is, to be sure, contained in the leaves of the *isatis,* during all the periods of its vegetation; but the coloring principle does not present itself at all times in the same quantity or of the same quality. In the young leaves the coloring principle is of a delicate blue, in those of a middle age the color is deeper, and in the ripe leaves it approaches to black. It has likewise been proved by observation, that the coloring principle is obtained from the young leaves with more difficulty than it is from those advanced towards maturity.

It appears then, that the most advantageous time for gathering the leaves of woad, is when they have acquired their full growth. But by what marks is this to be determined?

The manufacturers of woad cakes govern themselves upon this subject according to their own observations, and their modes of procedure vary more or less in different countries.

In England and Germany, the leaves are cut as soon as they begin to droop, and their bluish color to degenerate into a pale green.

In Thuringia, the leaves are gathered when they begin to droop, and to give out a strong, penetrating odor.

In Tuscany, the time for cutting the leaves is judged of by the color which a leaf affords when pressed between two linen cloths.

In the Roman states, the leaves are considered to be matured when they lose the intensity of their color, and begin to fade.

In Piedmont, the leaves are gathered when they begin to fall.

In the south, the leaves are considered as being mature when they exhibit a violet shade upon their borders.

We are indebted to M. Giobert, of Turin, for an excellent treatise upon woad, in which he states that, according to his observations, the quantity of indigo contained in the leaves of the plant in the most favorable seasons, increases progressively from the eleventh to the sixteenth day of their vegetation, after which time it remains stationary during four or five days, and then begins to decrease. The observations of M. Giobert have been confirmed in the south of France, at Bedford, and in nearly all Italy; and from them may therefore be deduced a general rule, by which the cutting of the leaves of woad may be governed, whenever the vegetation of the plant has been favored by the combined action of a good soil, a warm atmosphere, and a suitable degree of moisture, for without this the leaves will not have reached maturity in twelve or sixteen days, and they should not be gathered before approaching that state.

The extraction of the indigo is uniformly performed with more ease at an earlier period of vegetation, than when the leaves are perfectly mature; the quantity of coloring matter obtained is equally great, and the hue of it is handsomer.

The leaves of the *isatis* are gathered by plucking them off with the hand, or by cutting the stalks with a knife or pair of scissors; but whichever way is practised, care must be taken not to injure the stalks or tops of the plants; the cuttings may be repeated once in six or eight days, so as not to allow time for the quality of the leaves to degenerate. A mixture of the leaves of strange plants, and of the bastard woad, with those of the *isatis tinctoria,* must be carefully avoided.

The leaves, when gathered, are put into baskets and conveyed to the work shop in which the manufacture of woad cakes is carried on; when they have begun to wither, they are ground between two mill stones equally channelled; the bruised substance being frequently stirred with a shovel, and the grinding continued till the nerves of the leaves can no longer be perceived by the eye. All the juice which flows out during grinding, is carefully preserved to moisten the paste with when it is fermenting.

The paste is carried under a shed, the ground of which is a little sloping, and paved with cemented stones, in which are little channels for conveying into a reservoir the juice which flows out. Under the highest part of the shed is formed a bed of the paste three or four feet in length, to render this bed as compact as possible, it is beaten down with heavy pieces of wood. Fermentation commences in a short time, the mass swells and cracks, and there flows out from it a black liquor which is conducted into the reservoir by the channels in the pavement. In some manufactories this liquor is allowed to run off upon the ground without the shed; but the odor which it diffuses in this case is very offensive.

Whilst fermentation is going on, attention is paid to reuniting the mass when it cracks, and to moistening it either with urine, or with the juice which flowed from it when between the mill-stones.

After the paste has fermented well for three or four days, the mass is again beaten down, and this operation is renewed several times during the twenty or thirty days that the fermentation lasts; the paste being in the intervals moistened with the juice, and the surface of it united.

---

* This simple device is formed of two thin pieces of wood, which are neatly planed and accurately fitted together by means of a shoulder formed on the principal part, or *tally,* which is three inches longer than the inferior part, or *check;* the two, when joined together, making the *double-tally,* which is generally twelve inches long by one and a half square. One of these is appropriated to each set, who receives the check part, the tally remaining with the foreman, who, as the baskets are delivered, cuts one notch at the same time upon both by joining them together.

In a cold season, or when the leaves are poor and dry, fermentation will not be completed in a month; in Italy they often allow four months for it, and sometimes the bed is not removed till the following spring.

There is a kind of worm which often takes possession of these beds, and sometimes in such numbers as to devour all the indigo contained in them; in this case the beds must be turned over, and, if this be not sufficient, the whole must be again ground in the mill.

After fermentation the paste seldom appears of a uniform texture, and there will be found in it some remains of nerves which are visible to the eye; for this reason it is subjected to a second grinding, after which it is ready to be made into cakes; this is done by filling round wooden moulds with it, or by forming loaves four or five inches in diamater, and eight or ten in height, and usually weighing about three pounds and a quarter. In the south of France the moulds are usually much smaller, and the loaves of woad known by the name of *shells*, weigh but little more than one pound. These cakes should, when broken, appear of a violet color, and exhale a good odor.

The cakes are placed upon hurdles and carried to a dry and airy place to harden.

In most countries the cakes are sold in this state to the dyers, who make use of them either to heighten their woad dyes, or for dying by themselves a soft blue; but in general they are made to undergo another process, by which they are improved; this is called *refining*. This last operation is, however, seldom performed by the manufacturers, but by the dealers to whom they are sold in large quantities; the reason of this is, that the process of refining can be performed advantageously only on large masses, and the proprietor of the fields for cultivating woad has only the product of his harvest, and the conveniences necessary for making it into cakes.

For refining the woad cakes, it is necessary that they should either be ground in a mill or broken in pieces with an axe; the fragments are made into beds about four feet high, and sprinkled either with water, or, what is preferable, with the juice of the leaves; heat is developed in a short time, and a violent fermentation takes place.. At the end of six days the bed is turned, so as to bring the interior or under portion upon the top; this is watered in the same manner, and, five or six days after, the bed is again made over with the same care. These operations are renewed at short intervals, till the mass, having ceased to ferment, becomes cold; in this state all the animal and vegetable portions, with the exception of the indigo, are decomposed, and it is now sold to the dyers to the greatest advantage.

The mode of making woad cakes here described, is undoubtedly the most perfect one, but it is not everywhere practised. At Genoa they do not refine them; in the department of Calvados, and upon the Rhine, they pile up the leaves without grinding them; and they mould the cakes as soon as the division of the mass will allow of this operation.

It is necessary to observe, that an immense variety in the quality of the cakes is produced, not only by the nature of the soil and climate, but also by the difference of seasons, and by the care bestowed upon the cultivation of the plant and the gathering of the leaves; and from these circumstances arises the different estimation in which they are held in commerce, and consequently the various prices at which they are sold. The leaves of woad yield about one-third their weight of good cakes; these, when used with indigo to form dyes for producing a permanent blue color, serve not only to facilitate fermentation, but add the indigo which they contain, to that which is brought from India, and thus render the dye less expensive.

The cakes, especially those that have been refined, contain alone a sufficient quantity of indigo to give to cloth all the shades of blue, which can be procured from the imported material. M. Giobert states, that M. Alexander Mazéra, in the presence of several skilful dyers and manufacturers, and of the commissaries of the Academy of Turin, colored with the cakes four pieces of fine cloth of four different shades, and they were judged to be at least equal in brilliancy and durability to those obtained from the best Bengal indigo.

M. de Puymaurin has published an account of a process by which the inhabitants of the island of Corfu color, with the leaves of the *isatis*, the woollen stuffs of which they make their clothing. The practice with them is to cut the leaves when the plant is in flower, and, after carefully drawing out all the nerves, to reduce them to paste in a mortar; this paste is dried in the sun, and when it is to be used for coloring, is placed in a bucket and moistened with water; the mixture gradually heats and at length ferments strongly; water and a little weak ley of ashes is added, and the paste undergoes the putrid fermentation. Into this composition the cloth which is to be colored is plunged, and allowed to remain eight days, turning it from time to time; in this way it acquires a deep and lasting blue. The ease with which this process is executed would render it very useful in farmers' families.—*Chaptal.*

MOORS.

In some of the counties of England, there are considerable tracts of low swampy land, called *moors*, which for ages was thought to be of very little value. Lincolnshire, especially, was almost half covered with these deep alluvial fens, the favorite haunts of aquatic birds and amphibious animals. The greater part of these moors have been drained and brought under the plough and harrow; and thus converted into some of the finest and richest lands in the kingdom. One method of draining as I was told, in Lincolnshire, where the ground will not admit of any other, is by steam engines. The water which would otherwise accumulate in miry places, and prevent cultivation, is pumped up from one level to another, till it flows off in artificial channels, or is made to irrigate the higher grounds in the vicinity.

We, in this country, have but just begun to find out that our low swampy lands are the most valuable lands we have. Thousands and thousands of acres, even in the oldest states of the Union, are at this moment worse than useless to the owners, when a little expense and trouble might make them yield the best hay and pasturage, and the richest harvests of any they possess. It is wonderful to see how our people will cling to the hills and knolls of their farms, year after year, till they have utterly worn them out, when they have the richest bottom lands within a stone's throw, which have long since swallowed up the soil of all the high grounds in the vicinity, and which needs only to be drained and cultivated, to reward their owners a hundred fold.—And how many thousand beds of rich vegetable manure are there, which the proprietors have never dreamed of, and from which they might, with very little expense, restore their exhausted uplands. How lamentable is it to see industrious families almost starving upon thirty or fifty acres of sand and gravel, when they might just go down into their own moors, and grow rich upon *twenty* acres.—*Dr. Humphrey's Tour.*

Young Men's Department.

FROM A FATHER TO HIS SON.—No. VI.

SOCIAL AND RELATIVE DUTIES.

I mean the duties which every man owes to others and to society; and from the performance of which, from christian or benevolent motives, flows the purest and sweetest pleasures that fall to the lot of man. To do good unto others is not only a cardinal Christian duty, but it is a civil duty of the highest grade. It is a duty which blends itself in all the concerns of life, from the performance of which no class is exempt, and which has an intimate bearing upon the good order and happiness of society. Were I to give an illustration of its best influence upon society, in a collective body of men, I should point you to the society of Friends. As an entire class, they are probably more exemplary, in the performance of the social and relative duties of life, than any other class. I speak not of their religious tenets; but only of the influence which these appear to have upon their secular or worldly conduct. Their habits of industry, temperance, brotherly love and general benevolence, are worthy of high commendation, and of general imitation.

To discharge these duties suitably, you ought to become impressed with the belief of their importance, resulting as well from a consciousness of duty, as from a conviction that your individual happiness depends, in a great measure, upon their performance. There is a mutual dependance upon each other among the various classes of society, like that of the members of the human body.—The manufacturer depends upon the farmer and others for the sale of his fabrics, and the means of his subsistence. The mechanic and the professional man have a like dependence upon other classes; and the farmer, though most independent, is greatly indebted to the other classes for his prosperity, and the social enjoyments of civilized society. *Each class flourishes best when all classes flourish most.* Hence every individual acts wisely, who endeavors to promote the prosperity of all.

Let, therefore, no narrow-minded jealousy, or envious rivalship, deter you from the performance of a duty to a neighbor, or from rejoicing in the success of his honest labors—for you are in many ways benefitted by his success; but rather strive to commend him, by following his example in whatever is meritorious. A little pecuniary aid, the influence of your own good conduct in economising time and money, and in practising the charities of life, and even a friendly and kind deportment, may effect much among your acquaintance, to preserve them from bad habits, and in rendering them useful and respectable in society. It is through the influence of individuals, thus exerted, that communities are elevated in their character and enjoyments. We may, by precept and example,—by affection and kindness, win men to good habits; but we can seldom induce them to adopt those habits by coercion, or by a cold repulsive demeanor. We must illustrate, in our own persons, their benign influence, if we would persuade men to practise the virtues which adorn life, and impart to human beings their highest felicity

The man who seeks to promote only the interest of self—who would make the labors of others tributary to his wants, without reciprocating the favor to society, in some way, is an insulated being, an alien in the human family, a stranger alike to the sympathies and enjoyments which were designed to elevate him in the scale of intelligent beings.

EDUCATION OF FEMALES.

The principle just stated explains very obviously the weariness, debility, and injury to health which invariably follow forced confinement to one position or to one limited variety of movement, as is often witnessed in the education of young females. Alternate contraction and relaxation, or, in other words, exercise of the muscles which support the trunk of the body, are the only means which, according to the Creator's laws, are conductive to muscular development, and by which bodily strength and vigor can be secured. Instead of promoting such exercise, however, the prevailing system of female education places the muscles of the trunk, in particular, under the worst possible circumstances, and renders their exercise nearly impossible. Left to its own weight, the body would fall to the ground, in obedience to the ordinary law of gravitation: in sitting and standing, therefore, as well as in walking, the position is preserved only by active muscular exertion But if we confine ourselves to one attitude, such as that of setting erect upon a chair—or, what is still worse, on benches without backs, as is the common practice in schools,—it is obvious that we place the muscles which support the spine and trunk in the very disadvantageous position of permanent instead of alternate contraction; which we have seen to be in reality more fatiguing and debilitating to them than severe labor. Girls thus restrained daily for many successive hours invariably suffer—being deprived of the sports and exercise after school-hours which strengthen the muscles of boys, and enable them to withstand the oppression. The muscles being thus enfeebled, they either lean over insensibly to one side, and thus contract curvature of the spine; or their weakness being perceived, they are forthwith cased in stiffer and stronger stays—that support being sought for in steel and whalebone which nature intended they should obtain from the bones and muscles of their own bodies. The patient, finding the maintenance of erect carriage (the grand object for which all the suffering is inflicted) thus rendered more easy, at first welcomes the stays, and, like her teacher, fancies them highly useful. Speedily, however, their effects show them to be the reverse of beneficial. The same want of varied motion, which was the prime cause of the muscular weakness, is still further aggravated by the tight pressure of the stays interrupting the play of the muscles, and rendering them in a few months more powerless than ever. In spite, however, of the weariness and mischief which result from it, the same system is persevered in; and, during the short time allotted to that nominal exercise, the formal walk, the body is left almost as motionless as before, and only the legs are called into activity. The natural consequences of this treatment are, debility of the body, curvature of the spine, impaired digestion, and, from the diminished tone of all the animal and vital functions, general ill health:—and yet, while we thus set Nature and her laws at defiance, we presume to express surprise at the prevalence of female deformity and disease!

It would be easy, were it required, to prove that the picture here drawn is not over-charged. A single instance, from a note appended by Dr. Forbes to an excellent treatise on "Physical Education," by Dr. Barlow of Bath, will suffice. After copying the programme of a boarding-school for young ladies. which exhibits only one hour's exercise, consisting of a walk, arm in arm, on the high road, *and that only when the weather is fine at the particular hour allotted to it,* in contrast with *nine* hours at school or tasks, and *three and a half* at optional studies or works,—Dr. Forbes adds:—"That the practical results of such an astounding regimen are by no means overdrawn in the preceding pages is sufficiently evinced by the following fact, a fact which, we will venture to say, may be verified by inspection of thousands of boarding-schools in this country. *We lately visited in a large town a boarding-school containing forty girls; and we learned on close and accurate inquiry, that there was not one of the girls who had been at the school two years (and the majority had been as long) that were not more or less* CROOKED! Our patient was in this predicament; and we could perceive (what all may perceive who meet that most melancholy of all processions,—a boarding-school of young ladies in their walk) that *all* her companions were pallid. sallow, and listless. We can assert, *on the same authority of personal observation,* and on an extensive scale, that *scarcely a single girl (more especially of the middle classes) that has been at a boarding-school for two or three years, returns home with unimpaired health;* and for the truth of the assertion, we may appeal to every candid *father*, whose daughters have been placed in this situation."*

The sedentary and unvaried occupations which follow each other for hours in succession in many of our schools, have also been the cause of needless suffering to thousands; and it is high time that a sound physiology should step in to root out all such erroneous and hurtful practices.

Instead, therefore, of so many successive hours being devoted to study and to books, the employments of the young ought to be varied and interrupted by proper intervals of cheerful and exhilarating exercise, such as is derived from games of dexterity. which require the co-operation and society of companions. This is infinitely preferable to the solemn processions which are so often subsitued for exercise, and which are hurtful, inasmuch as they delude parents and teachers into the notion that they constitute in reality that which they only counterfeit and supersede. We have already seen what an important part the mental stimulus and nervous impulse perform, in exciting, sustaining, and directing muscular activity; and how difficult and inefficient muscular contraction becomes, when the mind, which directs it, is languid, or absorbed by other employments. The playful gambolling and varied movements which are so characteristic of the young of all animals, man not excepted, and which are at once so pleasing and so beneficial, show that, to render it beneficial in its fullest extent, nature requires amusement and sprightliness of mind to be combined with, and be the source of, muscular exercise; and that, when deprived of this healthful condition, it is a mere *evasion* of her law, and is not followed by a tithe of the advantages resulting from its real fulfilment. The buoyancy of spirit and comparative independence enjoyed by boys when out of school, prevent them suffering so much from this cause as girls do; but the injury inflicted on both is the more unpardonable, on account of the ease with which it might be entirely avoided.—*Combe's Principles of Physiology.*

ON EDUCATION.

How is a nation to grow rich and powerful? Every one will answer—By cultivating and making productive what nature has given them. So long as their lands remain uncultivated, no matter how rich by nature, they are still no source of wealth; but when they bestow *labor* upon them, and begin to plough and sow the fertile earth, they then become a source of profit. Now, is it not precisely the same case with the natural powers of *mind?* So long as they remain uncultivated, are they not valueless? Nature gives, it is true, to the mind *talent*, but she does not give learning or skill; just as she gives to the soil *fertility*, but not wheat or corn. In both cases the labor of man must make them productive. Now, this labor applied to the mind, is what we call *education*, a word derived from the Latin, which means the *educing* or bringing forth the hidden powers of that to which it is applied. In the same sense also we use the word *cultivation* we say: "*cultivate* the mind," just as we say "*cultivate* the soil."

From all this we conclude that a nation has two natural sources of wealth: one, the *soil* of the nation, and the other, the *mind* of the nation. So long as these remain *uncultivated*, they add little or nothing to wealth or power. Agriculture makes the one productive, education the other. Brought under cultivation, the *soil* brings forth wheat and corn and good grass, while the weeds and briars and poisonous plants are all rooted out; so *mind* brought under cultivation, brings forth skill, and learning, and sound knowledge, and good principles; while ignorance and prejudice, and bad passions, and evil habits, which are the weeds and briars and poisonous plants of the mind, are rooted out and destroyed.

An ignorant man, therefore, adds little or nothing to the wealth of the country, an educated man adds a great deal; an ignorant man is worth little in the market, his wages are low, because he has got no knowledge or skill to sell.—Thus in a woollen factory a skilful workman may get $10 or $15 a week, while an unskilled workman must be content with $2 or $3. In the store of a counting house, one clerk gets $1,000 salary, because he understands book-keeping or the value of goods, while another who is ignorant, gets nothing but his hoard. * * We see this difference too when we look at nations Thus China has ten times as many inhabitants as England, but England has a hundred times as much skill; therefore England is the more powerful of the two, and frightens the government of China by a single ship of war.

Thus, too, among the nations of Europe, Prussia is more powerful and prosperous than any other of the same size on the continent, because all her people are educated, and that education is a *Christian* one, making them moral and industrious as well as skilful. If, then, the education of the people be necessary to the prosperity of the nation, it is the duty of the government or nation to provide for it: that is, to see that no child grow up in ignorance or vice, because that is *wasting* the productive capital of the country. This education too should be a Christian education in order that children when they grow up should be honest. faithful and temperate; for if a man be a liar or a drunkard his knowledge and skill is worth little to the country, because he will be neither trusted nor employed.

None know the value of education but those who have received it; it is therefore the duty of every child who has been well educated himself, to use his influence when he grows up to extend it to others, and if he be a legislator to make it national and universal in his country.—*Mc Vickar.*

Nothing is bestowed on man in this life, without great labor.—*Horace.* Wealth, fame, influence and power, can none of them be attained without much pain and application.

Virtue is the only true nobility.—*Juv.* The insolence of pedigree, the pomp of titles and the pride of wealth, are reduced to nothing, when contrasted with the dignity of genuine virtue.

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at this office, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 21st May and 20th June inclusive. Numbers under ten not noticed.

POST-OFFICES.		POST-OFFICES.		POST-OFFICES.	
Accord, Uls.	13	*Havana, Tioga,	18	*Pittsfield, Mass.	49
*Annapolis, Md.	66	*Hamilton, Mad.	19	Rutland, Jeff.	14
*Brockville, U. C.	37	Hamptonburgh, Or.	15	Rehoboth, Va.	10
*Butternuts, Ots.	17	*Ithaca, Tomp.	20	*Shelbyville, Ten.	22
Binghamton, Broome,	10	*Kinderhook, Col.	20	Smithsburgh, Md.	11
*Boston, Mass.	53	Keesville, Ess.	15	Salem, Va.	10
*Brooklyn, Ct.	19	Lisbon, N. H.	11	Sandy-Hill, Wash.	11
Carthage, Ill.	11	Little Falls, Herk.	24	Stoney Point Mills, Va.	11
*Cobleskill, Scho.	17	*Lewistown, Pa.	15	Smyrna, Chen.	22
*Covington, Gen.	17	Manheim, Herk.	11	St. Inigoes, Md.	11
Farmville, Va.	10	Montreal, L. C.	10	*Tolland, Conn.	23
Fincastle, Va.	22	*New-York city,	65	Tuscumbia, Ala.	27
*Flemington, N. J.	22	New-Paltz, Ulst.	13	*Washington, D. C.	72
Greeneville, Gr.	12	New-Brunswick, N. J.	21	*Waterloo, S. C.	13
Georget'n + roads, Md.	11	*Northampton, Mass.	53	Wiota, Wisconsin ter.	11
Geneva, Ohio,	12	*Port Tobacco, Md.	22	Troy, Rens.	15
Hallsville, Mont.	19	*Penn-Yan, Yates,	14		
*Homer, Cort.	35	*Philadelphia, Pa.	91		

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. July 25.	Boston. July 18.	Philadel'a July 25.	Baltimore. July 25.
Beans white, bush........	1 75.. 2 00	1 87.. 2 25	..1 75	1 50..1 75
Beef, best. cwt...........	7 00..10 50	6 00.. 8 00	7 00..9 00	7 00..8 50
Pork, per cwt............	9 50..10 75	12 75..13 25	10 75	8 00..8 50
Butter, fresh, pound, ...	22.. 24	20.. 27	17.. 19	20.. 31
Cheese, pound, ...	9.. 11	10.. 12	10.. 11	
Flour, best, bbl......	7 00.. 7 62	7 00.. 7 37	6 00..6 62	6 75..8 25
GRAIN—Wheat, bushel, ..	.. 1 44	....	1 35..1 40	1 38..1 50
Rye, do. ..	.. 83	95.. 98	82.. 83	90.. 95
Oats, do. ..	48.. 53	55.. 56	43.. 44	40.. 45
Corn, do. ..	.. 80	78.. 92	76.. 83	77.. 80
SEEDS—Red Clover, lb...	10.. 11	11.. 12	10.. 11	.. 12
Timothy, bushel,.	2 75.. 2 80	2 75	2 00..3 00	2 50..3 00
WOOL—Saxony, fleece, lb.	50.. 75	60.. 75	70.. 75	30.. 68
Merino, lb..... .	60.. 65	55.. 65	67.. 70	28.. 55
1-4 and com. lb...	40.. 48	40.. 48	45.. 50	22.. 45
Sheep, ...	....	2 50.. 3 00		
Cows and Calves, ...	18 00..35 00	15 00..30 00	....	12 0..50 0

---

* Cyclopedia of Practical Medicine, article Physical Education; vol. i. p. 698.

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

VOL. III. ALBANY, SEPTEMBER, 1836.—(67 STATE-STREET.) No. 7.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor*.
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—GEORGE C. THORBURN and ALEXANDER SMITH, New-York. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

THE CROPS.

In a recent excursion to the western borders of the state, we took much pains to ascertain, from the best sources, the probable average of the wheat crop. The result of these inquiries is a conviction, that west of Cayuga Lake, the product does not exceed half a fair average crop; that in Cayuga and Onondaga, the proportion diminishes to a third, and that in Oneida it will not be one-quarter of the quantity required for the population of the county. These counties embrace the great wheat district of our state. The causes of failure have been, a snowy winter, which smothered much of the grain, a wet spring, the hessian fly, and lastly, we suspect to some extent, the grain-worm. This insect has been detected about Geneva and Ithaca, and we doubt not it has tended to diminish the product east of those places, as the farmers, not being sensible that the enemy was among them, omitted to look for it in their wheat fields till it had fallen and boroughed in the ground. The two first enumerated causes seem, however, principally to have operated to lessen the crop, and particularly the wet spring.

The corn crop seems diminutive in quantity, inferior in quality, and unpromising in product. An early frost would cause an almost total failure of a sound crop. We would repeat our advice, to harvest this crop as soon as the mass of the ears are glazed, as a means of making most both of the corn and the fodder.

We remarked, that both the wheat and corn crops looked best where the surface was most undulating and hilly, and better towards the heads than near the outlets of the small lakes. The cause of this is apparent. The heavy rains of May and June completely saturated the soil; so that where it was stiff, or reposed upon a tenacious subsoil, and the surface flat or but slightly sloping, the ground became virtually a concealed marsh, producing deleterious effects upon the wheat, and preventing the early working of the corn ground. We are pursuaded, from its beneficial effects in our own grounds, that had a thorough system of under-draining been previously adopted upon many farms we saw, the expense of draining would have been nearly made up to the proprietors in the increased products of the past season. Although it may seem paradoxical, we are persuaded, and will hereafter endeavor to show, that under-draining, by rendering the soil more pervious to atmospheric and solar influences, is alike calculated to counteract the effects of drought and habitual wetness.

The potato crop was suffering there, as here, from drought. The tubers were small, and the hopes of an abundant crop were diminishing. Peas, oats and grass were abundant and heavy. Buckwheat looked well, though apprehensions were entertained that it would suffer from early frost and the dry weather. Slight frosts had been already experienced in some districts. In Seneca and Tompkins counties, large quantities of flax were being cut with the cradle or scythe, cultivated principally for the seed.

A correspondent near Trenton, N. J. writes thus:

"I yesterday had the product of ten acres of wheat threshed, and obtained 60 bushels. In an adjoining field of about equal fertility, I last year had at the rate of 22 bushels the acre. Sixteen acres of rye averages about two bushels the acre, and is much better than some of my neighbors. One of them sowed ten bushels of wheat on good ground, and obtained but five bushels. The snow and the fly together destroyed our prospects of winter grain. Oats are good. Mine yielded 40 bushels the acre. Maize, where the first planting stood well, is setting an unusual number of ears; but the season has been so cold and damp, that they seem likely to be small, and if early frosts should come the crop will generally be light."

From a review of the information from all the states bordering on the Atlantic, it is very evident, that the crops of bread-corn are uncommonly deficient; that prices must consequently be high, and that but for the probability of our receiving heavy importations of grain from Europe, the prospect of a scarcity would be alarming. With these prospects before us, it becomes a matter of duty, as well as of interest, to husband well our means, and to endeavor, by prudence and economy, to avert the evils which threaten, at least the indigent classes of our population, the coming winter.

CHESS, OR CHEAT.

We received, the same day, from W. R. Cahoon, of Dover, Del. and from Ed. Wilbur, of Pittsford, N. Y. inquiries as to the origin and character of chess—whether it is a distinct species of plant, produced only from its kind, or a diseased, imperfect wheat. This has been a long controverted question; and although it has been well settled, in the minds of those who have become partizans in the controversy, it has so happened, that the opinions have been equally confident upon *both sides!* It would be presumption in us to assume the office of umpire, as we have made no special observation or experiments with a view to solve the question; but as we feel called upon to respond to the inquiry in some way, we will offer a few considerations which, at present, incline us to the opinion, that wheat is transformed into chess, or rather that chess is diseased wheat, without intending, however, to be drawn into further controversy in the matter.

Naturalists class wheat under the genus *triticum*, and chess under that of *bromus;* and they contend, what we are not prepared to deny, that one genus or species of plants, never assumes, from disease or malformation, the character of another genus or species of plants; and that hence wheat cannot generate chess. On the other hand, there are many practical farmers, and some of them philosophers too, who insist that wheat is mutable, and liable to change into chess;—that chess does grow, with wheat, where no chess has been sown, and where none existed in the soil; that where the soil is clean, and the seed pure, chess is not found in other farm crops, and that hence chess must be degenerate wheat, capable of germination and reproduction. One or two things is implied in the latter opinion;—either that naturalists have erred in classing chess with the family bromus, and in considering it a species, or that there are exceptions to general laws in vegetable physiology. We will not pretend to discuss these points, but proceed to state, in a brief manner, some facts, which we can account for in no other way, than by adopting the opinion we have expressed.

1. In wheat fields, chess most abounds where the wheat is in the most unhealthy condition—most in those spots where the wheat, for want of due pulverization of the soil, or from wetness, is most thin and sickly, and least where the soil is mellow and dry, and the crop most thick and healthy. If chess originated only from chess, it would be equally distributed; and would not particularly, and sometimes almost exclusively abound, where the ground has been but partially tilled, as upon the margin of the field, about stumps, and in low damp places. When chess is found in other crops, as it often is, being sown with the seed, it shows itself alike in every part of the field.

2. Upon a farm belonging to us, and occupied by a tenant, eight or ten acres of fallow were sown with select pure seed. The product was about 80 bushels of chess, and less than half that quantity of wheat. The soil was adapted to wheat, and believed to be perfectly clean.

3. In the Farmers' Register for January, of the current year, Thomas C. Nelson, states, that a wheat field belonging to him, self-sown, in consequence of the crop having been destroyed by a hail-storm, just before harvest, and not subsequently ploughed, which looked well in February, turned out to be "all chess," and gave him

more of this commodity, upon three acres, than he had had upon his farm in the preceding 38 years.

4. The same number of the Register contains a letter from N. Burwell, to the editor, accompanied by a root bearing apparently wheat and chess.

5. In the same work for November last, we find a letter from G. W. Featherstonhaugh, stating that he had in his possession, a plant containing four stalks and heads of chess, with the skin of a kernel of wheat, so attached to the root, as to satisfy him and others, and among others, the late President Madison, who examined it, that in this particular instance a kernel of wheat had produced a plant bearing heads of cheat.

It is needless to multiply facts of this kind, hundreds of which might be quoted; and yet we are aware that they are not all permitted to outweigh the authority of a well settled principle of natural law. With these remarks we must leave the mooted point where we found it,—involved with difficulty on both sides.

STONE FENCES.

Where stones abound upon a farm, and require to be taken off the fields to facilitate tillage, it is no doubt economical to work them into stone fences, and the sooner the better, as by it an incumbrance is removed, and a substantial fence erected. The economy of making stone fences in other cases, will depend on the scarcity, or price, of other materials for dead fences, on the facility of making live ones, and on the comparative cost of quarrying or drawing the stone. These circumstances will vary on almost every farm, and must become matters of individual calculation. But all experience teaches, that where stone walls are to be made, there is economy, in the long run, in making them well, that is, in making them so that they shall prove an efficient barrier to farm stock, and outlast the maker of them. If they are not efficient and durable, they become a source of incalculable trouble and expense. The damage to crops, and the expense of frequent repairs, to say nothing of their unsightly appearance, will soon overbalance the cost of building them well in the outset. "What you do, do well," is a maxim that will apply with particular force to this branch of farm improvement.

The material necessary for a good wall, is flat stones; the requisites to ensure durability are, a substantial foundation, which will give equally to pressure or to frost—a sufficient base to sustain the superstructure—a coping, and a good workman: and to render them efficient, they should be 4½ or 5 feet high, either entirely of stone, or crowned with a sufficient wooden structure. If the mass of stone are not flat, or rather if they are all round, they will not stay long in their place, without a broad base, and great slope upon the exterior surface. Round stones should be only used in what are denominated half walls, and which are to be crowned with wood. If the foundation gives unequally, the structure of the wall will soon be deranged, and parts of it will fall. A prudent way is to base it upon the hardpan, or subsoil, by clearing off the surface earth. Stone walls, unless laid in lime, which, by the bye, is an excellent practice, particularly about farm-buildings, where the expense can be afforded, should incline inwards from the base to the coping. The slope should be an inch in a foot; and if the wall is five feet high, and twelve inches broad at top, it should be two feet broad at bottom. The coping, which consists of broad stones, extending across the top, tends, by its weight and its bond, to keep the materials in place. Heavy stones, of suitable size, should be reserved for this use.—But even with good materials, a good foundation, and a broad base, a stone wall will not be permanent, unless the stones are properly placed, so as to constitute a bond, and prevent their falling piecemeal. The construction of a wall of stone or brick, demands an observance of the same professional rules of structure, whether it be intended for a fence or a dwelling. The breaking of joints, both lengthwise and across, which we denominate the bond, constitutes the main strength of the structure.

There are three modes of constructing stone fences of in common use:

1. Where the material is abundant, and where the whole structure is to be of stone. Such should be five feet high, two feet broad at bottom, and one foot at top, which will allow a flare of one inch to the foot on each surface.

2. Where the materials of the fence are to be part stone, and part wood, which is sometimes termed half wall fence. In constructing this, posts are first set in the line at proper distances, the wall is then built 2½ or 3 feet high, and boards nailed to the posts above to the required height, or two rails added, holes for which should be made in the posts previous to their being put down. The posts serve to steady and preserve the wall; and they should be of durable materials, as cedar, locust, &c. as their situation subjects them to rapid decay. Another mode is, to insert three foot posts into pieces of stout plank, or blocks of wood, to be worked into the wall 1½ or 2 feet above the surface of the ground, and to close the wall over them, and then add the boards or rails as before.

3. Wall with riders. This is built, of any convenient height, of stones; poles or rails are then laid lengthwise upon the top; stakes to cross are then inserted, which keep the poles in place, and support other poles or rails, placed upon them, which completes the structure.

EARTHEN OR SOD FENCES.

In many districts, where fencing materials of all kinds are scarce and dear, earthen or sod fences are resorted to. But they are generally badly constructed, and are of temporary duration. Like most other farm operations, there are more ways of doing the thing wrong than of doing it right; and if there are no rules laid down for doing right, the wrong is of course likely to prevail. To remedy the general want of information upon this subject, we give the substance of Anderson's directions for constructing them, with the remark, that it might be advisable with us to make them of less height than he directs, and to crown them with a board or rail.

He directs that sod fences, or dykes, be built three and a half, or four feet broad at the base, 15 or 18 inches at top, and 5 feet high, and that the sods or turf be so laid on, having been first cut of the required size, in such a manner as that every sod from top to bottom, binds the joinings of the other below it, with as much accuracy as bricks in a well built wall. The uppermost course of sod is cut a little longer than those that are immediately below it, and placed with the grassy side uppermost, so as to project a little on each side, which is not only of use to throw the water a little off the wall or dyke, but is also of use in preventing sheep or cattle from attempting to jump over it. He has found, that a wall, whose foundation is stone, though the stones rose no more than a foot, having the upper part finished with sod, or alternate layers of stone and sod, is probably more durable than any other kind of fence composed of either of these materials. We doubt the utility of mixing stones and sods in our dry and hot climate. The grass would die, the earth crumble down and the stones fall. At the foot of the wall or dyke, on both sides, is dug a ditch 1½ or 2 feet deep, leaving a ledget of a few inches broad on each side, that the dyke may not be undermined by the crumbling of the loose earth into the ditch. These ditches not only give the dyke an additional height, and keep its foundation dry, but are also of use to prevent cattle from coming close to it, and rubbing upon it or tearing it down with their horns, which they are very apt to do if this precaution be omitted. Earthen dykes or fences can be built at about one-fourth part of the expense of stone walls, where stones are convenient, and if carefully built, may be kept in repair for any number of years, at a very small expense. The reader will find the subject more largely treated of in Anderson's Essays, vol 1, p. 7, and in the 4to ed. of Dickson, vol. 1, p. 155, &c. Of the cuts below, fig. 33 shows a stone wall with a stone coping; figs. 34, 35, 36 and 37, represent the manner of forming earthen fences, so as to prevent their crumbling down and being destroyed. Fig. 34 is a perpendicular section; fig. 35 a side view; fig. 36 is a perpendicular view of each row of turf as it lies in the fence; and fig. 37 is a view of a *ha-ha*, or sunk

Fig. 33.

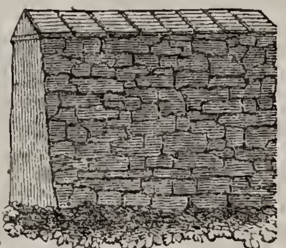
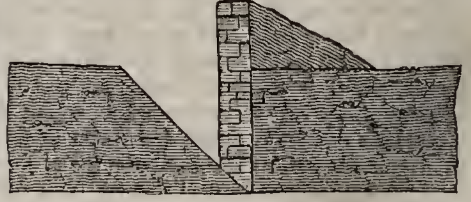


Fig. 37.



fence, faced with stone, often constructed in parks, or where it is desired that the view shall not be obstructed.

Fig. 35. Fig. 35.

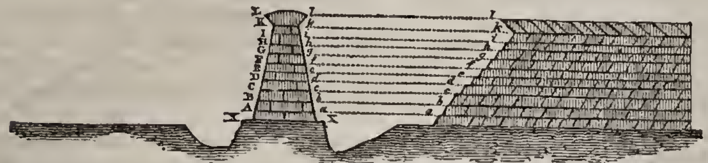
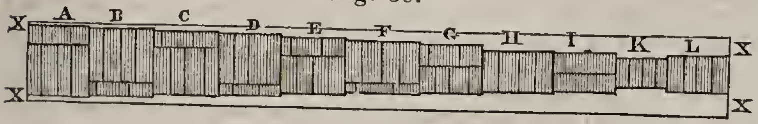


Fig. 36.



AGRICULTURAL MUSEUMS.

The Scotch, who we have often commended for their agricultural societies, and agricultural improvements, are adding to their means of information, the important advantages of agricultural museums. Three of these museums have been established by individual enterprise, since 1830, at Stirling, Edinburgh and Perth. The third report of the Messrs. Drummonds, at Stirling, has just reached us. It contains 160 pages, 50 of which are occupied with communications from the most eminent practical men. We avail ourselves of the language of Mr. Archibald Gorrie, to make known to our readers the nature of these collections, and some of the advantages which are likely to result from them.

"In these museums, which are open to the public, specimens of the various productions of the garden, the field, and the forest, with models and improved implements of husbandry, are here exhibited. In one place may be seen the different varieties of grain and pulse, in straw and in sample, now in general cultivation, or recently introduced from foreign parts, with explanations respecting soil, culture, weight, climate, acreable produce, &c., by which means the farmer may easily avail himself of the collected experience of his brethren, and be induced to contribute in return. In another place appears a collection of the different species and varieties of roots now under cultivation, affording the same advantages. Ample collections of living and dried specimens of grasses, in scientific arrangement, form another interesting feature in the exhibition, pointing to the farmer, in language as strong as it is in the collective power of grass to express, a proffer of service, whereby he can improve its condition, and, with much anvantage to himself, convert it into flesh. And the various improved and rare productions of the garden that appear at, and give additional interest to these museums, shew that nothing shall be wanting on the part of horticulturists in promoting improvements in the field. To the intelligent and enterprising young man, desirous of pursuing the important art of agriculture as a profession, or of becoming a gentleman's land-steward or overseer, such schools of instruction must be of immense value, as there he can have, for days, weeks, or months together, opportunities of minutely examining the specimens, labels, and appropriate books—of coming in constant contact with the most scientific and practical agriculturists of the day—thus affording him the means of storing his mind with the most valuable facts, in a mode not more inviting than it is novel and expeditious."

The first section of the report is descriptive of soils, of which numerous specimens are deposited, gives their classification, their qualities as indicated by the natural growth of plants upon them, and their constituent parts. It describes a geologico-agricultural cabinet of hand specimens of the principal rocks and other strata that constitute the crust of the earth. It gives also a copious explanation of scientific terms employed in agricultural science. We close this article, for the present, with a further extract, and one of deep interest, from this branch of the report.

"*Elementary Substances.*—The great mass of the earth's crust, however variously combined, is found to consist of but few simple substances, viz. *silica*, or the matter of quartz, *alumina*, or pure clay, *lime*, *magnesia*, *potash*, and *oxide of iron*, of which specimens are here given, the five preceding as well as the last being oxides or rusts, the state in which they exist at the surface; but reduced by the chemist to their most simple state, their metallic base, they become the combustible elements, *silicon*, *aluminum*, *calcium*, *magnesium*, *potassium*, and *iron*, in which state they are supposed by some to exist in the interior of the globe; and mixtures of which, being found on coming into contact with water or moist air, to cause fire and explosion, from thence have been deduced the phenomena of earthquakes and volcanic action.

"*Simple Minerals.*—These elementary substances are found combined with one another in certain proportions, forming simple minerals, and so called on account of their homogenous or uniform aspect; the six of which specimens are given, with the proportions afforded by analysis marked on them, occurring either simple, or aggregated into the compound rocks, compose the principal bulk of the primitive, and likewise a great part of the secondary formations.

"*Stratified, or Rocks of aqueous origin.*—Arranged into beds or strata by the agency of water.

"*Unstratified, or Rocks of igneous origin.*—Occurring in masses, having been protruded in a melted state from below.

"The arrangement into these two classes is here adopted, as appearing to possess the highest probability, from the present state of geological facts and researches.

"*Primitive Stratified.*—Inferring from multiplied facts, it has been supposed that at the formation of the globe, the chemical affinities of the different elementary metals and gases having been permitted to come into action at the surface, the primitive strata appear to have been arranged by the agency of water, according to their gravities in concentric layers, forming the first hard envelope or crust betwixt the superincumbent water and atmosphere, and the interior; their crystalline structure is considered to have been principally caused by the heat of the fused masses of granite which afterwards came in contact with them. Their period of formation is considered to be prior to the creation of organic beings, as they contain no petrified remains.

"*The Primitive Unstratified.*—The combustible elements being thus pent up, as it were, under the first envelope, and having but partial access to water, perhaps through the still porous strata, yet enough for ignition and expansion, and hence, in melted masses, upheaving, twisting, and protruding through the primitive strata, shifted them in many cases from the horizontal to their present nearly vertical position; and thus elevating a great part of the earth's surface above the circumfluent water, caused the first dry land and mountain chains.

"*Secondary Stratified.*—In this arrangement are included all the rocky strata that have been deposited since the first breaking up of the primitive, many fragments of which are imbedded in the earlier formations; these strata are of partial extent only, and appear to have been formed in the beds of seas and oceans now laid dry. They contain many petrifactions, and are more earthy in aspect than the primitive.

"*The Secondary Unstratified*, are those rocks the results of successive eruptions which have taken place since the creation of organic beings till the present time. An extended projection of these in a time of intense volcanic action is considered to have been the proximate cause of the deluge, by elevating the bed of the ocean and depressing of the primeval land. They often occur in veins as well as masses, which gives them the appearance of beds, but when traced out they are found soon to pass up or down into a different stratification.

"*Alluvial Strata* here includes the more recent formations caused by the breaking down and decomposition of previously existing rocks, by the agency of water and air, and which rest upon and form a cover to the rocky strata.

"*Subsoils.*—The stratum immediately underneath the soil is either *retentive*, not permitting water to pass through freely, as clay, close beds of rock, &c.; or *porous*, permitting water to pass through freely, as sand, open rocky, &c. A knowledge of the constituent earths of the different strata, becomes, in the department of subsoils, of very great importance to the cultivator, as it would enable him at once to discriminate what may, and what may not be taken into the soil freely; thus the red calcareous or limy sand, is very like the red siliceous sand; and farmers removing from a district where they had taken up the former to their great profit, have, in another district, taken up the latter to their great loss.

"*Earths alone*, according to most physiologists, are of little other use to plants than as affording a medium for fixing themselves by their roots, and for distributing their proper nourishment. The mixtures of these earths are various, as the rocks and minerals, by whose decomposition and crumbling down, they have been produced.

Silica, existing chiefly under the modification of sand, alumina under that of clay; and lime, as chalk, or carbonate, constitute the principal earths; magnesia and iron oxide in lesser quantity; other oxides and salts, in this general view, not particularised.

"*Organic matter alone*, or decaying vegetable and animal matter, being the principal source of nourishment to plants; the excessive accumulation of vegetable matter, however, in uncultivated wastes, forms, with water, inert peat, occasioning barrenness.

"*Water*, having in solution extract, or juice from organic matter, being the nourishment absorbed by the roots of plants, in some degree as animals feed by their mouths, while at the same time they inhale with it air, as animals by their lungs.* Part of it is in a sponge, which is only half charged, to shew the manner in which soils should hold the solution, in order that plants, not naturally aquatics, may avail themselves of it; holding it by what is called capillary attraction—the soil being moist but not wet. The necessary air is excluded when soils are saturated with water, and when too dry, there is no solution—no food; in the one case plants are starved, in the other, are drowned.

"*Earths, organic matter, water and air*, or proper active soil.—The foregoing specimens and remarks, it is hoped, will make more plain the rationale of the general cultivation of the soil. Thus, among many other deductions, it is obvious—

"1. That plants should have a regular supply of *available* food. Hence the primary advantage of thorough drainage, in retentive soils, as it enables plants readily to take up that food which the old system only lays before them, and then leaves them to pick a scant subsistence in regions of constant chill and suffocation.

"2. That pulverization, by ploughing, &c. highly promotes the growth of plants; as it affords their roots a free range, increases the power of retaining water by capillary attraction, and thus ensures a more extended and regular supply. Deepening the soil and using the subsoil plough powerfully augments the same advantages; this last improvement at once converting the adverse and retentive subsoil into a drain in time of wet, and a reservoir in time of drought, and ultimately into good soil.

"3. The replenishing the soil with organic matter, in the shape of manure, is absolutely necessary for the production of the extractive juice for plants. Naturally they furnish this for themselves, by decay of their previously existing substance; but, in cultivation, a continued cropping and carrying off the produce, without manuring, would soon reduce their fare to earths alone.

"4. That the value of soils must depend much on their power of retaining the essentail nourishment, and serving it out liberally, and yet with economy, as vegetation requires. Heavy clays retain, but do not part with it liberally. Light sands and gravels neither retain nor serve it out with economy. By duly mixing these, the requisite power is communicated in the most perfect manner. Clay and sand are often found not far distant. Lime assists in either case; and by attention to constituent parts, other strata may be made available; so that in many cases this fundamental improvement of the constitution and texture of soils may be easily effected, yielding a greatly increased ratio of production, with a decreased ratio of outlay.

"*Arrangement of Soils.*—Agreeably to their constitution and texture, in reference to the last mentioned powers and to cultivation, being the chief practical points of view, soils are arranged into—

"1. *Heavy.*—Tenacious and adhesive in texture, heavy to work.—Spec. *clayey.*

"2. *Medium.*—Betwixt heavy and light, exercising the due medium in nourishment, medium to work in part, but in whole requiring least labor and expense.—Spec. *medium.*

"3. *Light.*—Open and porous in texture, light to work.—Spec. *sandy, gravelly, peaty.*

"An advanced stage of fertility of any one of them is the loam of that kind or name. In describing any soil the comparative degree of fertility may be given, thus:—Poor clayey soil, clayey soil, and clayey loam, and so on of the others, giving also the kind of subsoil. When chalk abounds, the term chalky or calcareous, and when oxide of iron, the term ferruginous is included; and in a full description, the degree of depth, dryness, or wetness."

PLANTING.—No. III.

The following memoranda, regarding the gathering, preserving and sowing the seeds of forest trees, we trust will be found useful to all:

Magnolia.—The cucumber tree (*M. acuminata*) is indigenous in the southwestern counties of New-York. It is ornamental and grows to the size of a timber tree. Its wood is used in cabinet work and by the house joiner. The seed ripens in September, and should be sown as soon as ripe, in a well prepared peat and sand soil; and if not then sown, should be mixed, when dry, with dry peat earth, and in this way kept or transported. The other species of the Magnolia are either merely ornamental or are too tender for our latitude.

Linden (*Tillia*) or lime, or bass wood. There are two American and several European species of this tree. The red twigged, and some other European species, are extensively employed to embellish our towns and country seats. Sow the seed in autumn, in a shady border of light moist soil. The Linden is extensively propogated by layers. For this purpose the bole is taken off at the surface of the ground, which causes a multiplicity of sprouts to spring from the stool, and the second year these may be laid, will take root, and may be taken off and planted.

Maple (*Acer*)—The sugar and soft maples are the most common and best to plant. The latter is one of the most rapid growing and hardy trees of our forest. The seeds of the first may be gathered in autumn, and immediately sown, in a bed of light mould; or, which is better, mixed with double their bulk of pulverized earth, laid upon the surface, and covered with an inch or two of mould, till the succeeding fall, and then sown—as they seldom grow before the second year. The seeds of the soft maple ripen in the last of May. If sown immediately after being gathered, they will vegetate quickly, and make plants the same season ten to twenty-four inches high. Both kinds seed abundantly.

Walnuts. (*Juglans*)—This genera includes the Madeira nut (*J. Regia*) black walnut (*J. nigra*) and butternut (*J. cinneria.*) Preserve the seed carefully and sow early in spring. The black walnut is peculiarly suited for planting. It grows rapidly, and makes a valuable material for the best cabinet and joiner's work. It abounds in western New-York, Ohio, &c. It has grown with us nearly 40 feet, from the seed, in 14 years. The juglans does best in a moist soil. We shall speak particularly of the mode of preserving seeds in our next number.

Honey Locust (*Gleditschia triacanthos*) is indigenous in the west, grows quick, and is readily propogated by seeds, which are best preserved in their pods, and sown in the spring. This is hardly worth raising, except for ornament or hedges, and even for the latter purpose its usefulness is not yet fully established.

Common Locust (*Robina psuedo-acacia.*)—Sow at the time of planting corn, in drills two feet apart, in well prepared ground, having first swelled the seeds by pouring upon them scalding water. This is one of the most profitable trees that can be propagated. It multiplies readily by sprouts, grows rapidly on most soils, and is highly valuable in naval architecture and for various purposes of the farm. It will bear cutting over every twenty or twenty-five years.

Ash (*Fraxinus.*)—The white and black are the most common and valuable, and both have abundance of seeds. The first prefers a dry, the latter a moist soil. Gather the seed as soon as ripe, in autumn, and dry it in a cool airy loft. Sow in April in a bed of well prepared mould; the plants will appear the following spring; or, sow immediately when fresh gathered, and many seeds will vegetate the ensuing spring. The timber of the ash is extensively used in the mechanic arts, and for farm purposes. We are sorry to add, that some white ash of our planting have been attacked and destroyed by a bore, or worm.

Oak (*Quercus*)—There are many valuable American species. A rich loam, with a clayey sub-soil, brings the oak to the greatest perfection, but it may be profitably cultivated in almost any description of soil, except boggy and peaty. Sow the beginning of November; or if deferred until spring, spread the acorns upon a cool dry floor, to prevent their sprouting or heating.

Beech (*Fagus*) Abounds in most of the northern states, is much used in the mechanic arts, and affords excellent building timber and fuel. Sow in autumn or spring, in a sandy soil. The seeds often require protection from field mice and other vermin.

☞ *Note well*, that all seeds of trees, not sown when gathered, should be dried in an airy situation, before they are packed for transportation or spring use, and some require then to be packed with dry sand or peat earth, lest they become rancid, and lose their germinating power.

Chesnut—(*Castania*)—The only forest species are the common and the Spanish, and the latter is believed to be too tender for this latitude, though it succeeds well on York Island. The growth of this tree is rapid, and the uses to which the timber is applied on the farm are various and important. Large tracts are appropriated to its growth in Pennsylvania for charcoal. It will bear cutting over once in fifteen years for this purpose. A friend informed us, that a chesnut tree was cut, in his youth, to supply shingles for a barn; that when the shingles were decayed so far as that the barn required re-shingling, the sprouts which had grown from the old stump had grown so large as to furnish shingles for the purpose. A sandy loam produces the chesnut in the greatest perfection, though it grows well in clayey soils, if free from stagnant moisture. The seeds may be sown in early spring, and may be preserved in dry earth during winter. Michaux recommends that they be kept in earth in a cellar, where they will sprout before planting time.

---

* De Candolle is of opinion that the function of transmitting air extends through the whole of the vascular system.

Plane—(*Platanus*) or button wood tree. Sow the seeds immediately after they are gathered. The plane is also propagated by layers or cuttings. It prefers a moist loam, and grows rapidly.

Elm—(*Ulmus*)—The seed of the elm falls from the 20th to 30th May. It should be immediately gathered and sown in drills, in well prepared soil. It often grows 18 to 24 inches the first year. We have gathered the seed of the elm, soft maple and plane tree (the latter of the preceding years growth) on the 25th and 28th of May, sown immediately, and had fine plants the same season.

Whitewood—(*Lyriodendrum tulipefera*) or tulip tree, is one of the most magnificent trees of our forest, whether we regard size, or the beauty of its foliage and flowers; and it is also a valuable timber tree. We lately measured a log of this tree at Lockport, and found it 6 feet 2 inches in diameter. Michaux speaks of one which measured 22 feet 6 inches in circumference. The seeds may be gathered and sown like those of the linden.

CONE-BEARING TREES.

These are the pines, firs, larches, &c. which may be beneficially cultivated in plantations, in belts or clumps, for shelter, ornament or timber. The larch and Scotch fir, in particular, are extensively and profitably planted in Great Britain and Flanders, for forest timber. The seeds are enveloped in the scales of the cone, where they are best preserved till wanted for use, but from which it is difficult to extract some kinds of them. If thrown into an oven of moderate temperature, the scales open, and the seeds are separated with a flail. But where this is done, the seeds should be afterwards gathered in a heap, and slightly sprinked with water, that they may imbibe the moisture of which they have been artificially deprived, and which seems essential to the preservation of the vegetating principle. To extract the seeds from some of the large compact cones, it is common first to split them into halves or quarters, by driving a spike or sharp piece of wood into the pith of the cone, at the butt end.

FRENCH AGRICULTURE.

Agricultural improvement is receiving a new and vigorous impetus, from the active labors of eminent men in science and practice, associates of the Royal and Central Society of France. Science has been long made subservient to the improvement of the manufacturing and mechanic arts of that country; but it was not until recently that associations of learned men directed their knowledge to the improvement of her agriculture, the primary source of national prosperity and greatness. In the sitting in April, M. Passy, minister of commerce and public works, presiding, prizes were awarded to the amount of several thousand francs, for improvements in agriculture, as for draining, for works, memoirs and observations on the veterinary practice, for plantations of the mulberry tree, and on various agricultural improvements. Among the prizes awarded, we observe mention made of the splendid work on agriculture, 2 vols. quarto, of Olivier of Serres, an edition of which has been printed at the expense of the society. A gold medal was awarded to M. Graux, for having obtained, in his flock, a new race of sheep, with soft glossy wool, which he has succeeded, by continual pains for six years, to preserve and multiply in its purity.

The prizes advertised for future competition, indicate an enlightened policy, which looks to the substantial improvement of French agriculture. They embrace, among other, the following objects:—

The introduction, into the different cantons, of new species of nutritive herbage.

Biographical notices of theoretical farmers, cultivators or writers, worthy of being better known for the services they have rendered to agriculture.

Translations of foreign works of merit on domestic and rural economy.

For memoirs, &c. on veterinary medicine, and on irrigation—and for artesian wells.

For plantations of the apple and pear into cantons where they are not grown; for plantations of mulberry trees; for draining; for nurseries and plantations of cork trees; and for the propagation of good species of fruit trees by means of nurseries. To the last object, a prize of 1,000 francs and two gold medals, are to be awarded in 1848.

For the discovery of a simple and cheap means, within the power of small cultivators, to preserve wheat from the attacks of insects, a prize of 1,000 francs. For the discovery of means to arrest the ravages of insects in grain already attacked, 500 francs. For good observations upon the natural history of these insects, medals of gold, silver, and works on agriculture.

The prizes offered for improvements in the beet culture, and the fabrication of beet sugar, as stated in our last, amount to eight or ten thousand francs. The franc, our readers will recollect, is about 18½ cents.

From the report of M. Bodin, vice-secretary, we make the following extracts, which may afford useful hints to our exclusively wheat or tobacco farmers:

"In times not very remote from our own, the production of bread stuffs, of wheat, above all, considered as the almost exclusive means of human subsistence, was, so to speak, the only object of agriculture, and that was an object not always actually obtained. Even yet, in many quarters, the idea of agriculture is associated almost exclusively with the plough; with waiving fields of wheat; with harvests ready to fall beneath the sickle of the reaper. Artificial meadows were then unknown. Stock was rare, because the spontaneous herbage on which their chief dependance was for subsistence, was rare also. The potato, still neglected in many places, was far from being supposed capable of furnishing a *fifth part* of the subsistence of a great nation! The introduction of esculent roots was then very far from being regarded as the commencement of a struggle with grasses and grain, in which the former are already half victorious. The soil exhausted by the too rapid succession of the crops of corn, was fast tending to the lowest degree of sterility.

"But in the labors, as in the institutions of mankind, the evil often makes its appearance by the side of the remedy. The reduction of the price of wheat, accruing from its almost exclusive cultivation for human subsistence, became so excessive, as to counterbalance the effect of all that had been previously attempted for the amelioration of agriculture. When we consider this reduction of price accompanied with the consequences which have sprung from it in our own times, it may well be made a question, whether we ought rather to regard it as an evil or a blessing; or rather as a fact inherent in the nature of things, than a result which should excite any profound inquietude?" * * "Agriculture, then, if it would avoid the periodical phenomenon to which I have alluded, and from which it has suffered so extensively, must seek other sources of profit than the culture of bread stuffs alone."

"The beet root has come, at length, to sanction the scientific predictions which were made of its capabilities, and the hopes to which they gave rise are in a rapid train of realization. The beet root is at last becoming a great, an incalculable source of wealth to French agriculture and industry, and never, of all the plants of the earth, has any vegetable produced for France and Europe, so extensive and so beneficent a revolution. I will not repeat here all that has been said upon this result. It is but fifteen years since Vicompt de Morel Vende, presented the *beet root*, which had just then been so warmly recommended for its properties, by Chaptal—presented it, I say, as the best possible substitute for following, in a quadriennial succession of crops; and that skilful agronomist (agronome) thus combined the universal improvement of our agriculture with the fabrication of indigenous sugar. If then, we would improve our land and our culture, we ought to cultivate the beet, even if it yielded us none of the rich product of sugar. It is, therefore, that the Royal Society of Agriculture has deemed that it was rendering a signal service to the country, in seeking to propagate the culture of the beet root—in making it a general and common property of the soil, where natural circumstances would permit, and in introducing, even to the smallest rural establishments, by the aid of processes which experience ought to simplify still more, the fabrication of indigenous sugar."—[*See, for the entire report, Journal of the American Institute for June* 1836.]

DISEASES OF SHEEP, &c.

For the foot rot in Sheep.—Take alum, green vitriol and white mercury, the first in the largest proportion; dissolve them in water, and after the hoof is pared, anoint it with a feather, and bind on a rag all over the foot. The Middlesex shepherds use the green vitriol alone, after pounding it fine. Others again anoint with a feather dipped in aqua fortis, or weak nitric acid. The drovers to Smithfield carry a bottle of this with them, to apply to lame sheep. It hardens the hoof, and enables the sheep to travel better. Another mode is to spread 3 or 4 inches slaked lime over a floor, pare the sheep's feet well, and turn them into this house, where they may remain for a few hours, and then be put into a dry pasture. The treatment may be twice or thrice repeated.

To prevent the foot rot.—Keep the sheep in dry pastures, and if stony the better; examine them often and carefully; and when any fissures or cracks, attended with heat, make their appearance, apply oil of turpentine and common brandy. When these do not avail, wash the diseased part, and pare as close as possible without drawing blood, and apply some of the caustics above named. In all cases it is of great consequence that the animal be afterwards exposed only to a moderate temperature—be invigorated with proper food, and kept in clean, early, dry pasture.

To prevent sheep from catching cold after being shorne.—Rub them with water saturated with salt, or plunge them in sea water.

To cure the scab.—Sir Joseph Banks gave the following prescription to the Society for the encouragement of arts: take 1 lb. of quicksilver, ½ lb. Venice turpentine, ½ pint oil of turpentine, and 4 lbs. hog's lard; rub them in a mortar till they are well incorporated. Then begin at the head of the sheep, proceed from between the ears along the back, to the end of the tail; the wool is be divided in a furrow till the skin can be touched, and as the furrow is made, the finger, slightly dipped in the ointment, is to be drawn along the bottom of it, where it will leave a blue stain on the skin and adjoining wool. From this make similar furrows down the shoulders and thighs to the legs, and if the animal is much infected, two should be drawn along each side, and the ointment applied in all.

To cure the measles in swine.—The existence of the disease can only be known by the animal not thriving or fattening like the rest. Put into the food of each hog, once or twice a week, as much crude pounded antimony as will lie on a shilling. This is very proper for any feeding swine, though they have no disorder. A small quantity of the flour of brimstone will be found of great service, if occasionally given to swine. But the best way is to *prevent* disease, by keeping their sties clean and dry, and to allow them air, exercise, and plenty of clean straw.

Cure for cattle swelled with green-food.—Give of dose of train oil, which, after repeated trials, says the Farmer's Magazine, has been found to prove successful. The quantity of oil must vary according to the age and size of the animal. For a grown up beast give a pint, which must be administered with a bottle, taking care to rub the stomach well, in order to make it go down. After receiving this medicine it must be made to walk about, until such time as the swelling begins to subside.

Draining.—The importance of under-draining, to health, where lands are flat and possess a retention subsoil, to say nothing of the benefits which draining imparts to culture, is well explained in the following extract, which we make from M. Puvis.

"The water with which the soil is inundated, not being able to escape in any direction, [the surface being level, and the subsoil too compact for its passage down,] remains there [upon the subsoil] in a state of stagnation, the general principle of the corruption of water. It forms then in the soil a kind of interior marsh; the sun and the dryness of the air exhale a part. These waters, motionless, diminished, heated by the sun in the warmth of the long summer days, ferment, become altered, and are sometimes so much corrupted as to become black. They are then an unwholesome drink for men; and at the same time the exhalations of a soil impregnated with corrupted water, becomes unhealthy, as those of the borders of marshes, of ponds, and of all lands temporarily inundated and which the summer sun strikes upon, after the waters are drawn off. Thus among the inhabitants of a district, in the midst of an atmosphere mixed with deleterious exhalations, numerous intermittent fevers occur, without the necessity of the appearance of any marshes or ponds in the country."

Effects of Temperance.—We find from the Register of the Society of Friends, or Quakers, that as a consequence of their temperance, one half of those that are born, live to the age of 47 years; whereas Dr. Price tells us, that of the general population of London, half that are born live only two years and three quarters. Among the Quakers, 1 in 10 arrive at 80 years of age, of the general population of London only 1 in 40. Never did a more powerful argument support the practice of temperance and virtue.

Potato Hoe.—We are much pleased with a new cast iron malleable potato hoe, or hook, manufactured and presented to us by Messrs. Thorp and Adams, of Oak Hill, Green county. It has four prongs, which are round, and equally well adapted to digging potatoes, or to hoeing or loosening the earth about garden or field crops. These hoes are for sale at Thorburn's, at 50 cents each.

NOTICES OF CORRESPONDENCE, &c.

Ribwort.—L. S. who dates at Salisbury, complains of the "*southern plantain*," as a nuisance in his grounds, and asks us how it can be got rid of. We presume our correspondent alludes to the ribwort plantain, (*Plantago lanceolata*,) a hardy plant, with a tuft of long ribbed leaves springing from the crown of the root, and a long tap-root. We know of no other mode of getting rid of this, than by destroying the plants separately, as we do dock. But the evil, if we apprehend aright the plant alluded to, is not so great as our correspondent imagines, inasmuch as the plant is often cultivated on account of its herbage, in damp moist grounds, where it thrives best. Arthur Young cultivated and recommended it. Anderson says it is well liked by horses and cattle, and yields a very good crop in rich ground tending to dampness. It abounds in the irrigated meadows of Lombardy; and is highly commended both there and in Yorkshire as a pasture grass. It affords a nutritious hay, particularly for cows, which are also advantageously fed upon the green crop in May. Upon dry grounds its growth is stinted.

Saxon Bucks.—S. C. Scoville, of Salisbury, Vt. wishes to sell 100 Saxon bucks, which he states to be of the best stock, the clip of which has been sold at $1 per pound. Gentlemen who have inquired of us for these sheep will address Mr. Scoville.

Cortland Marl.—Mr. N. Gillet, of Cortlandville, is informed, that the analysis, in our last, was of his brick, or lower specimen, of marl.

Barley.—M. B. Mason, of Montpelier, Md. asks our opinion of the practicability of substituting barley for rye in his farm crops—and whether barley can be advantageously grown on corn ground, &c. The best soils for barley are light rich clay loams, it neither doing well in stiff clay or light sand. The product is greater than that of rye, on soils adapted to its growth. The spring barley is alone cultivated here; we of course can say nothing of the winter species. Our principal doubt is, whether Maryland is not too far south for the crop to succeed well, and this doubt would seem to be removed by the fact, that barley is among the principal farm crops in Persia, and Asia Minor, where we believe the temperature is warmer than it is in Maryland.

Rape.—D. S. Davies, of Saratoga, asks for directions in cultivating the rape. Rape, colza, or cole seed, (*Brassica campestris*, of De Candolle,) is an important article in Flemish husbandry, though but little cultivated in Britain, and not at all in the United States. It is cultivated on account of its seed, which is crushed like lintseed, and the oil expressed in like manner. The cake is generally thrown into the urine cisterns, where it becomes a valuable material as manure. The haulm, after the seed is threshed, is burnt for the ashes, which are considered of treble the value of other ashes, used as a manure. As rape is biennial, it is doubtful whether it would withstand the cold of our winters. It is sometimes sown broad cast, but generally in seed beds, in August or September, and in the latter case planted with dibble in October, in the seams of the furrows of fresh ploughed ground, so as to have the plants stand one foot apart each way. The crop is cleaned in autumn, and again in the spring; it is pulled rather green, and the seed ripens in the stack.

A partner wanted in a sheep or stock farm.—J. B. Gray of East-wood, Va. has 3,000 acres of land, on the Blue Ridge, Orange co. Va. eminently calculated for sheep pasture, and is desirous of associating with some gentlemen of the north, of enterprise and capital, familiar with the business. Mr. G.'s letter may be seen at this office, or he may be addressed, as above, by letter.

Madder.—Jas. Eaton, of West Winfield, who cultivates this crop, is convinced, from experience, that it is best to let it stand four or five years. A single hill, thus left, afforded him eight pounds nine ounces of the best ground madder. An acre, he says, will contain 1,200 hills, thus affording, at this rate, 10,000 pounds. Mr. Eaton will take up a crop in September, and will furnish seed (offsets,) at $3 per bushel.

The Borer.—We have received from L. U. Lawrence, of Hudson, a specimen bug, which, in its larvae or caterpillar state, becomes destructive to the peach and quince trees, and we suspect the apple, by entering near the ground, and perforating the wood. The specimen sent us is the *Saperda bivittata* of Say. Prof. Say, in a letter to the conductor, in 1825, states that he has 130 species of this family of insects in his cabinet. The insect leaves the pupa and becomes perfect in the latter part of April, and the eggs are soon after deposited at or beneath the surface of the soil. The professor recommends the application of bricklayer's clay around the base of the tree, as a preventive, and states that it has been successfully employed by Mr. Shotwell. Lime and ashes, we think, by their caustic quality, will equally serve as a preventive. We are very much in doubt whether the specimen sent us is the peach borer, though we recognize it as the apple borer, and a *Saperda.* It may have been caught in a strange garret.

Ants.—A Salisbury, Ct. correspondent, complains that himself and neighbors are very much pestered with large black ants, and also to some extent by the small red ones, and requests that some one will prescribe a remedy that will prevent the incursions of this army of thieves. Ants cohabit in numerous parties, and maintain a sort of republic, like bees, and like them to collect and lay up provisions for time of want. The readiest way to destroy them, is to turn scalding water, from the nozzle of a tea-kettle or coffee-pot, into their haunts. Or, put four ounces of sublimate into two gallons of water, and with a painter's brush, wash the shelves and walls which they frequent with the solution. A mixture of quick-lime and soot, strewed upon the shelves they visit, is said to keep them off. In the south, we are told, they are very troublesome; and that the only effectual mode of preserving provisions from their depredations, is to place the latter upon a table, and to set the legs of the table in small vessels of oil, so that the ants cannot get access to it.

☞ Mr. Ingham's communication will appear in our next number *without charge;* and other favors of correspondents, now unavoidably omitted, will receive proper attention.

CORRESPONDENCE.

ADRIANCE'S PATENT CORN-SHELLER.

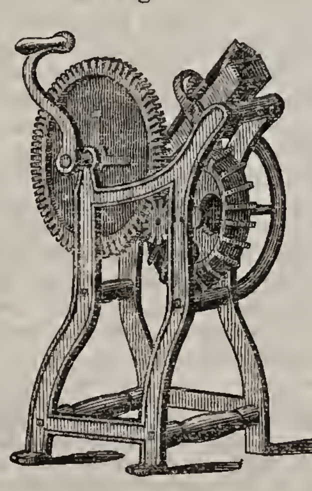


Fig. 38.

Mr. Buel—Sir—Of all the labor-saving machines yet offered to the public, Green's Straw Cutter and the Corn Sheller stand pre-eminent.

The Corn Sheller is one of the most convenient and useful implements that the practical farmer has in use. Various machines for this purpose have been invented, from the handle of the frying-pan and fire shovel, up to the machine figured above; the most improved and best adapted for common use, as it is quite simple in its construction, and durable in operation, being made of iron, and no way liable to get out of order. A man to turn and a boy to feed it, will shell from twelve to fifteen bushels per hour. On a trial, to ascertain how much could be shelled in a certain time, two bushels of ears were shelled in three minutes. By substituting a pully or wheel for the crank, it may be attached to a horse power, and a much larger quantity may be shelled in the same time. It is so light and portable, that it can be moved from place to place with great ease.

There are various kinds, and some on the same principle of the above, differing only in the frames being of wood instead of iron. There are, also, double ones, with wooden frames, shelling two ears at the same time.

I have used one to shell my corn, and was much surprised, from the rapidity with which it operates, that it does not injure the kernel; and, judging from what little experience I have had, the expense of the machine may be soon saved in measurement, as it completely strips the ear of every kernel. Besides, it may be worked in a room in the evening, when threshing with horses or the flail would be entirely out of the question.

By means of a spiral spring and screw, it may be graduated for large or small sized ears.

They need only to be known to be used; and a person might as well think of eating soup with a fork, as to shell corn the old fashioned way, after seeing one of these in operation.

The above cut, (fig. 38,) represents one of Adriance's patent iron frame machines, manufactured at Poughkeepsie, and kept for sale at the Agricultural Repository of Mr. William Thorburn, No. 317 N. Market-street, corner of Maiden-Lane, Albany. Price $15. Double ones, with wooden frames, $16, delivered at the store.

Having used one of the above and tested its qualities, I cheerfully recommend them to the public. CALEB N. BEMENT.

Three Hills Farm, August 15, 1836.

THE GRAIN WEEVIL.

Mr. J. Buel—I have lately become acquainted with your very useful periodical the Cultivator, and have become one of your patrons. I observe in your number for the present month a communication on weevils, signed "A Miller and subscriber," which induces me to throw out a few observations or remarks on the subject, which, if worth inserting, you will give a place in your paper. In the year 1806 I was under the necessity of repairing my dwelling house; whilst the mechanics were at work, we were obliged to resort to the barn to eat our meals. Previous to which the barn was pretty thoroughly cleaned out, the floor was scrubbed, the timbers swept, the poles turned over, the ground under the floor and bay scraped out, and all the litter taken out that could be got at, which had been accumulating for several years previously. During several years prior to this cleaning, my barn had been infested with weevil to an alarming extent; after the cleaning, as I have mentioned, the weevil were constantly on the move, crawling over the table and dishes in every direction. I put my wheat and rye harvest into the barn that and every succeeding season since, and have not, from that time to this, (which you will observe is thirty years,) seen a weevil about my barn, and I am fully convinced that any barn or mill may be cleared of weevil by cleaning, but it must be well done. A. B. W.

Hamptonburgh, July 25th, 1836.

ENEMIES OF THE WHEAT CROP.

Mr. Buel—Dear Sir—As the section of country in which I live is peculiarly a wheat country, and owing to which the farmers here have particularly devoted their time and their talents to the cultivation and improvement of that crop, as affording the greatest profit from the least labor and expense, you may well suppose that a considerable degree of anxiety will be felt about every thing that involves the safety and stability of this important article of agriculture and consumption.

So far as I have been able to discover, there are three kinds of insects, committing altogether a considerable damage to the wheat crop in this neighborhood, whose operations, though known, are as yet without the reach of any adequate remedy. The species which has caused the greatest mischief, is the wheat fly, (*Cecidomyia Tritici*) whose mode of operations, so far as I have been led to observe, differ materially from that laid down in your paper as characteristic of this insect. Cultivator, vol. 1st, page 124, is the following—"It lays its eggs within the glumes of the florets, in clusters varying in number from two to ten, or even to fifteen, and the larvae feed upon the grain. They are produced from the eggs in the course of eight or ten days; they are at first perfectly transparent, and assume a yellow color a few days afterwards; they travel not from one floret to another, and forty-seven have been numbered in one. Occasionally there are found in the same floret, larvae and a grain which is generally shriveled, as if deprived of nourishment; and although the pollen may furnish the larvae with food in the first instance, they soon crowd around the lower part of the germen, and they in all probability, subsist on the matter destined to form the grain." Page 158, speaking of the same insect, "the progeny being hatched in the ear, feed on the grain. They are very small, from ten to fourteen being sometimes found in one grain, and are distinguished by being of a bright orange color. They do not extend beyond the grain in which they are born, but several grains being thus consumed on one ear, the damage done is often considerable."* I have examined a number of heads of wheat affected by this insect, some the lower part, some the middle, some the top, and some the whole of the head being killed; but have in no instance discovered more than one larvae in a floret; the grain being in all cases perfectly sound and full where the insect was found, and where the grain had began to shrink the insect was not found, and the grain remained perfectly sound, there being no indications of its having been eaten or stung; the rachis exhibiting the same unaltered sound appearance. This examination was made with a microscope, and no causes were discernable that could lead to the destruction of the grain but the sting in the glume where the egg was deposited. I have not before seen this insect in this place, and feel a considerable anxiety lest it should become a permanent evil; in which case it will become necessary to devise some plan for counteracting its ravages. Will you please to solicit information from your correspondents, where the wheat-fly has been of longer continuance, whether they increase their ravages or not, from year to year.†

Another enemy we have in our wheat fields, is a worm whose greatest size, so far as I have observed, does not exceed one quarter of an inch in length, and about as large round as a common knitting needle. I have never seen any account given of this worm, by naturalists or agriculturists, or of the injury it does to the wheat crop. I will state to you the manner in which this worm conducts its operations, so far as they have come under my observation. Two or three weeks before the wheat is headed out, I have discovered just above the first lower joint, a worm about an eighth of an inch in length, and as large round as a cambric needle; on examining the straw I found that the worm had been hatched about half way between the two first joints of the stalk, immediately under the fine silky lining of the straw, and had worked its way under this lining down to the first joint, (the wad growing larger and larger,) and there burst from its covered way into the hollow of the straw. The worm here appears to deposit its eggs, from one to three, into the sap-circulating organs of the straw, and they are forced along above the second joint, about half way to the third, where a second generation of worms are hatched out, who work their way as the first had done, under the silky lining down to the joint, and there deposite a new set of eggs, to be carried above the third joint, producing a third generation of worms; each generation rising one joint in the straw above the other, till they have reached and passed the last joint, (which supports the wheat head) and here they cut off the straw completely, leaving the leaf which surrounds it entire, which supports the stalk, and in consequence the head of wheat, and the straw above the last joint immediately die. This last and fatal operation to the wheat, is performed by the worm in from one to three weeks after the wheat is headed out. The worm then escapes from the straw, between the leaf and the dead stalk, having first deposited from five to thirty eggs along on the inside of the straw, between the upper joint and the head. Here terminate my observations upon this worm, and I shall be thankful to you for farther information respecting it, if it is known to you, and the means of destroying it. I shall prosecute my examinations yet farther, and if possible, discover the perfect insect, if the worm is not it.‡

The next and last ravager is the Hessian fly, whose depredations however, are rather slight; but from the number of larvae that I have found in the wheat, I am led to believe that they will be much more numerous aud destructive another season, unless some seasonable remedy shall be devised, and applied, to destroy the eggs that are to produce the next generation of flies. As there are so many conflicting opinions respecting this fly, and the want of a uniform and correct knowledge respecting it, it is very desirable that the farmers should be made fully acquainted with all its operations, and the most approved method of ridding our land of its ravages. Will you confer upon the agricultural community the benefit of all the authentic information in your possession on the subject of this fly.*

If it will not be taxing you too much at once, I wish to inquire of you whether there have been experiments tried that has settled the question of the origin of chess in wheat; it is a subject that has produced considerable speculation, without establishing any uniform and settled opinion respecting it.

With feelings of sincere regard, yours, &c.

EDWARD WILBUR.

Pittsford, July 19th, 1836.

ITALIAN SPRING WHEAT.

J. Buel, Esq.—I have the pleasure to inform you that the crop of *Italian Spring Wheat* through this and the adjoining towns, is remarkably fine, while our winter wheat crop has, in most cases, failed—whole fields having been winter killed. The produce this season is rated from twenty-five to thirty-five bushels per acre, and of choice sample.

This wheat deserves the attention of agriculturists in every section of the country, as it has not failed in any instance.

Your obedient servant,

J. HATHAWAY.

Rome, August 15, 1836.

BENEFIT OF PLASTER.

Mr. Buel—I have long been prejudiced against plaster, but have recently been convinced of its utility on dry loam and sandy soils; the benefit on corn is great. Last season part of a field I planted the seed was rolled in plaster; the difference could be seen for half a mile, through the season. It was full one quarter larger than where no plaster was used. The present season I have made the same experiment, and thus for see the same results, except on damp or clay land. A few days since a neighbor of mine, who gave his name for your excellent paper, showed me the effect produced on an old grass lay, a red rock, or slate soil; bringing in an abundance of both white and red clover, where there was none before. The plaster was put on as late as May. The effect, I think, would have been greater had it been sown two or three months sooner. Yours, respectfully,

JOHN S. LINSLEY.

Northford, Conn. July 13, 1836.

UTILITY OF SAVINGS BANKS IN THE COUNTRY.

J. Buel, Esq.—I was much pleased to see in the last number of the Cultivator, an interesting article from your correspondent G. T. E. C. "demonstrating the utility of Country Savings Banks," for there is no demonstration equal to successful experiment. I was not aware that a trial of them had been made in the country, though long convinced in my own mind of their practicability as well as utility, and I am more and more impressed with the conviction of the great importance of such institutions to the community. I am no advocate for a miserly, penurious or niggardly disposition to hoard up wealth in any class—all should enjoy in a rational way what their income will allow. But I am in favor, Mr. Editor, of habits of economy and prudence in the expenditure of money, and of saving for future emergency, all beyond necessary wants, particularly in those who are dependant on the labor of their hands for the support of themselves and families. In this country, where laborers are in great demand, and consequently wages high, a young man who commences life with well formed habits of industry and economy, is sure, with the blessing of health, to build himself up, if not a fortune, at least a competency; and to all such the savings bank would come in aid, and would also induce hundreds and thousands of others to save what they otherwise would squander; and when such views prevail good citizenship is almost certain to follow. Let an individual see that his best interests are identified with that of the community around him, and he will be the last to countenance, much less be instrumental in raising riots and mobs, thus setting the laws at defiance. I will venture to say, that the names of few, if any of those who have kept our cities in constant agitation and alarm, by their unlawful combinations, disgraceful riots, midnight conflagrations and murders, are to be found on the books of savings banks as depositors. No, sir, the persons who occasion all these disturbances are not the prudent and industrious, but the idle, the profligate, the frequenters of the grog shop, the theatre, the gaming table and the brothel, those who, having nothing of property or character to lose, imagine they will be gainers by the commotions they get up in society; and the actors of such scenes are not confined to cities, they not unfrequently show how low and degraded they can render themselves even in our otherwise happy and peaceful country.

---

* A true description.—*Cond.*

† The wheat worm *has* increased its ravages, where it has appeared, for two or three years at least.—*Cond.*

‡ If we know the character of this insect, it is also found in some of the grasses, as well as in grain, as the timothy, the poas, &c. Its presence is indicated by the head of the grain or grass prematurely turning brown. The injury it does is comparatively trifling.

* The facts aro well authenticated, that there are two generations of this insect in a year, the eggs of the first being deposited the last of April or beginning of May, and of the latter the last of August or beginning of September; they are hatched in a few days, and the insect changes to a chrysalis state in about four weeks after the eggs are deposited. To guard against the fly in the fall, do not sow until the period of laying their eggs is past, say the first of October. To guard against it in the spring, sow on dry and good soils, so as to ensure a vigorous growth. It is affirmed by many, that the egg of the fly is deposited on the kernel of the seed, and sown with it, and that soaking in pickle, and rolling in lime, will destroy the seed both of the hessian fly and of smut. See Memoirs of Board of Agriculture, vol. iii. p 326 to 358.—*Cond.*

Could all our young men, and young women too, be persuaded to enrol themselves on the side of temperance, in its most extended sense, and to forego all superfluous and unnecessary expenditures, soon, very soon the necessity for jails and prisons, and poor-houses, and TAXES for the support of their inmates, would have passed away. With much respect, yours, W. W. J.

Hamptonburgh, July 25, 1836.

N. B. Our wheat and rye harvest in this section will be light, considerably below an average crop. The prospect for tolerably fair crops of corn has materially brightened, potatoes promise well, oats and grass remarkably fine.

GREEN'S STRAW CUTTER.

DEAR SIR—I last fall bought one of Green's Straw Cutters, of Mr. Bement, Albany. I had a stock of horses and horn cattle of about 35 head. I cut all of my hay, and also my straw, and when cut (for horses, oxen and cattle that were not worked, and for cows which did not give milk,) the hay and straw cut was mixed together about half and half, (which is conveniently done,) and then fed to my stock in mangers under my sheds. They ate it all up clean—there was not a bushel of the cut fodder wasted during the winter. For my working oxen and horses, and cows that gave milk, I cut as above, except I put about two parts hay and one part straw. I fed no grain or mill stuff during the winter. My stock never went through a winter better. I can safely say that I saved by the operation at least 30 per cent on my fodder, over the usual way of feeding. I am fully satisfied that when our farmers become fully acquainted with the use of the Straw Cutter, they would not be without one if at twice the price which is charged for them. Yours, &c.

J. W. DOUGLAS.

Lockport, July 23, 1836.

LOADING HAY.

If I can communicate to the public any thing useful, they have my consent to take all the advantage of it they can, without paying any thing for the right.

What I claim as an improvement, is the laying hay upon the rack so that no labor shall be lost in pitching off. Our hay rack is wide, so as to contain three tiers of fork fulls. We always begin at the hind end and load towards the other; we pitch generally from a windrow, and when a course is out the loader tells the pitcher to start on. At once starting we generally have hay enough to lay one course of forkfulls; we fill the rack a little above the raves, then lay a course the off side, then one the nigh side, then one in the middle, then begin the off side again, &c., laying as much in the middle as either side. When we come to pitch off we have no trouble to find where to begin at any time, and by having the system understood, we can pitch off each other's load if necessary.

WM. GOULD.

Lorraine, Jefferson Co., July 29th, 1836.

EXTRACTS.

DEVELOPMENT OF VEGETABLES.

Farther proofs of design may be collected from an examination into the modes in which these structures, so admirably adapted to their objects, have been gradually formed. Confining our attention to vascular plants, in which the process of development has been studied with the greatest attention and success, we find that nature has pursued two different plans in conducting their growth.[*] In the greater number, the successive additions to the substance of the stem are made on the exterior side of the parts from which they proceed. This mode is adopted in what are called *Exogenous plants.* In others, the growth is the result of additions made internally; a plan which is followed in all *Endogenous plants.* The oak, the elm, the beech, the pine, and all the trees of the northern regions, belong to the first of these divisions. The palm tribe, such as the date, the cocoa nut tree, and indeed a large proportion of the trees of tropical climates, together with the sugar cane, the bamboo, and all gramineous and liliaceous plants, belong to the latter. We shall first inquire into the endogenous mode of growth, as being the simplest of these two kinds of vegetable developement.

A palm tree may be taken as an example as the mode of growth in endogenous plants. The stem of this tree is usually perfectly cylindrical, attains a great height, and bears on its summit a tuft of leaves. It is composed of an extremely dense external cylindric layer of wood; but the texture of the interior becomes gradually softer and more porous as it comes nearer to the centre; though with regard to its essential character it appears to be uniform in every part, having neither medullary rays, nor true outward bark, nor any central pith; in all of which respects it differs totally from the ordinary exogenous trees.

The first stage of its growth consists in the appearance of a circle of leaves, which shoot upwards from the neck of the plant, and attain, during the first year, a certain size. The following year, another circle of leaves arises; but they grow from the interior of the former circle, which they force outwards as their vegetation advances, and as ligneous matter is deposited within them. Thus, each succeeding year brings with it a fresh crop of leaves, intermixed with ligneous or woody matter, which leaves, exert an outward pressure, and stretch out the preceding layers that enclose them; until the latter, acquiring greater density, no longer admit of farther distention, and remain permanently fixed. This happens first to the outermost layer, which is the oldest; then each succeeding layer becomes consolidated in its turn. As soon as the outer layer has become too hard to yield to the pressure from within, the growth of the inner layers is immediately directed upwards; so that they each rise in succession by distinct stages, always proceeding from the interior; a mode of development which has been compared by De Candolle, to the drawing out of the sliding tubes of a telescope. The whole stem, whatever height it may attain, never increases its diameter after its outward layer has been consolidated. A circle of leaves annually sprouts from the margin of wood; these, when they fall off in autumn, leave on the stem certain traces of their former existence, consisting of a circular impression round the stem. The age of the tree may accordingly be estimated by the number of these circles, or knots, which appear along its stem. The successive knots which appear in the stems of other endogenous plants, as may be observed in growing corn, and also in various grasses, may be traced to a similar origin.

The structure of exogenous trees is more complicated: for, when fully grown, they are composed of two principal parts, the *wood* and the *bark.* The woody portion exhibits a farther division into *pith*, which occupies the centre, and consists of large vesicles, not cohering very closely, but forming a light and spongy texture, readily permeable to liquids and to air; the *harder wood*, which surrounds the pith, in concentric rings, or layers; and the softer wood, or *alburnum*, which is also disposed in concentric layers on the outside of the former. Each of these concentric layers of wood and alburnum may be farther distinguished into an inner and outer portion; the former being of less density than the latter, and consisting of a lighter cellular tissue; while the outer portion is composed of the denser woody fibres, resulting from the union of numerous vessels with a cellular envelope. The bark is formed by concentric layers of hortical substance, of which the innermost are denominated the *liber;* and the whole is surrounded by an outer zone of cellular tissue, termed the *cellular envelope.* Of this envelope the exterior surface is called the *epidermis.*

All these concentric zones may be readily distinguished in a horizontal section of the stem; which also presents a number of lines called *medullary rays*, radiating from the pith to the circumference. They are composed chiefly of large cells, extending transversely, or in the direction of the diameter of the tree, and composing by their union continuous vertical planes the whole length of the trunk.

---

[*] The tribe of *Felicis*, or ferns, the structure of which is vascular, constitutes an exception to this rule; as they differ in their mode of development, both from exogenous and indogenous plants.

Every vegetable stem, and also every branch which arises from it, is developed from a germ, or bud, which is originally of inconceivable minuteness, and totally imperceptible by any optical means of which we have the command. As soon as it becomes visible, and its structure can be distinguished, it is found to contain within itself the parts which are to arise from it, in miniature, and folded up in the smallest possible compass. The portion destined to form the stem is gradually expanded both in breadth and height, but principally the latter; so that it rises as it grows, during a certain period, until the fibres acquire the solidity and strength necessary not only for their own support, but also for sustaining the parts which are to be farther added. In trees this process generally occupies one whole season; during which the growth of the first layer of wood, with its central pith, and its covering of a layer of bark, is free and unrestrained. On the second year, a fresh impulse being given to vegetation, a new growth commences from the upper end of the original stem, as if it were the development of a new bud; and at the same time a layer of cellular tissue is formed by the deposition of new materials on the outside of the former wood, and between it and the bark. This is followed by a second layer of wood, enveloping the new layer of cellular tissue.

The effect of this new growth is to compress the new layer of wood which had been formed during the first year, and to impede its further extension in breadth. But as its fibres, consisting of vessels and cells, are not yet consolidated, and admit of still greater expansion as long as they are supplied with nourishment, their growth, which is restrained latterally, is now directed upwards, and there is no farther enlargement of their diameter. From the same cause, the pith cannot increase in size; and is even found to diminish by the pressure of the surrounding wood. Thus, the vertical elongation of the entire stem continues during the whole of second year, and the trunk becomes sufficiently strengthened by the addition of the second layer on its outside to bear this increase of its height.

While this process is going on in the wood, corresponding changes take place in the bark, and a new layer is added on its inner surface, or that which is contiguous to the wood. This layer constitutes the *liber*. All these new depositions must of course tend to stretch the outer portions of the bark, which had been first formed, and which yield to this pressure, to a certain extent; but, becoming themselves consolidated by the effects of the same pressure, they acquire increasing rigidity; and, the same cause continuing to operate, they at length give way, in various places, forming those deep cracks, which are observable in the bark of old trees, and which give so rugged an appearance to their surface. The cuticle has, long before this, peeled off, and has been succeeded by the consolidated layers of cortical envelope which form the *epidermis*. But the epidermis, which is continually splitting by the expansion of the part it encloses, itself soon decays, and is constantly succeeded by fresh layers, produced by the same process of consolidation in the subjacent cortical substance.

During the third and each succeeding year, the same process is repeated; new layers of cellular texture and of woody fibres are deposited around those of the preceding year's growth, and a new internal coating is given to the liber of the bark. The compressing power continues to be exerted on the internal layers of wood, directing their growth vertically, while they are capable of elongation, and can be supplied with nourishment. In time, however, by continual pressure, and accumulating depositions of solid matter, the vessels and the cells become less and less pervious to fluids; till at length all farther dilation is prevented. But the tree still continues to enlarge its trunk by the annual accessions of vigorous and expansible alburnum, and to take its station among its kindred inhabitants of the forest; till, arriving at maturity, its majestic form towers above all the junior or less vigorous trees.*

The development of each branch takes place in the same manner, and by the same kind of process, as that of the trunk. The buds from which they originate, spring from the angle formed by the stalk which supports a leaf, and which is termed by botanists the *axilla* of that leaf. A law of symmetry is established by nature in the development of all the parts of plants. The leaves, in particular, are frequently observed to arise in a circle, or symmetrically around the parent stem; forming what is called a *whorl*, or, in botanical language, a *verticillated* arrangement. In other cases they are found to have their origins at equal intervals of a spiral line, which may be conceived to be drawn along the stem, or the branch from which they grow. When these intervals correspond to the semi-circumference of the stem, the leaves alternate with one another on its opposite sides.

The stems of most plants, even those that are perfectly erect, exhibit a tendency to a spiral growth. This is observable in the fibres of the wood of the pine, however straight may be the direction of the whole trunk. This tendency is shown even in the epidermis of the cherry tree, for it may be stripped off with more facility in a spiral direction than in any other. The primitive direction of the leaves of endogenous plants is a spiral one. It is particularly marked also in the stems of creepers and of parasitic plants, which are generally twisted throughout their whole length; a disposition evidently conducive to the purpose of their formation, namely, that of laying hold of the objects with which they come in contact, and of twining round them in search both of nourishment and support. The twisted stems of the hop and of ivy show this structure in a remarkable degree, and the purpose for which this tendency was given cannot be mistaken.—*Roget's Bridgewater Treatise.*

OF THE CHOICE OF LIVE STOCK FOR THE PURPOSES OF BREEDING OR FEEDING.

The most desirable properties of live stock destined for food are considered in *The Code of Agriculture*, in respect to size, form, a tendency to grow, early maturity, hardiness of constitution, prolific properties, quality of flesh, a disposition to fatten, and lightness of offal.

Before the improvements introduced by Bakewell, the value of an animal was entirely judged of by its bulk; and if a great size could be obtained, more regard was paid to the price the animal ultimately fetched, than to the cost of its food. Of late, since breeders began to calculate with more precision, small or moderate sized animals have been generally preferred, for the following reasons:—

Small sized animals are more easily kept, they thrive on shorter herbage, they collect food where a large animal could hardly exist, and thence are more profitable. Their meat is finer grained, produces richer gravy, has often a superior flavor, and is commonly more nicely marbled, or veined with fat, especially when they have been fed for two years. Large animals are not so well calculated for general consumption as the moderate sized, particularly in hot weather; large animals poach pastures more than small ones; they are not so active, require more rest, collect their food with more labor, and will only consume the nicer and more delicate sorts of plants. Small cows of the true dairy breeds give proportionably more milk than large ones. Small cattle may be fattened solely on grass of even moderate quality; whereas the large require the richest pastures, or to be stall-fed, the expense of which exhausts the profit of the farmer. It is much easier to porcure well-shaped and kindly-feeding stock of a small size than of a large one. Small sized cattle may be kept by many persons who cannot afford either to purchase or to maintain large ones, and by whom the loss, if any acccident should happen to them, can be more easily borne. The small sized sell better; for a butcher, from a conviction that, in proportion to their respective dimensions, there is a greater superficies of valuable parts in a small than in a large animal, will give more money for two oxen of twelve stone each per quarter, than for one of twenty-four stone.

In favor of the large sized, it is, on the other hand, contended, that without debating whether from their birth till they are slaughtered the large or small one eats most for its size, yet on the whole the large one will pay the grazier or farmer who fattens him as well for its food: that though some large oxen are coarse-grained, yet where attention is paid to the breed (as is the case with the Herefordshire,) the large ox is as delicate food as the small one; that if the small sized are better calculated for the consumption of private families, of villages, or of small towns, yet that large cattle are fitter for the markets of great towns, and in particular of the metropolis; that were the flesh of the small sized ox better when fresh, yet the meat of the large sized is unquestionably more calculated for salting, a most essential object in a marine and commercial country, for the thicker the beef the better it will retain its juices when salted, and the fitter it is for long voyages; that the hide of the large ox is of very great consequence in various manufactures; that large stock are in general distinguished by a greater quietness of disposition; that where the pastures are good, cattle and sheep will increase in size, without any particular attention on the part of the breeder; large animals are therefore naturally the proper stock for such pastures; that the art of fattening cattle, and even sheep, with oil-cake, being much improved and extended, the advantage of that practice would be of less consequence, unless large oxen were bred, as small oxen can be fattened with grass and turnips, as well as oil-cake; and, lastly, that large oxen are better calculated for working than small ones, two large oxen being equal to four small ones in the plough or the cart.

---

* It is contended by Dr. Darwin, and other writers on vegetable physiology, that each annual shoot should be regarded as a collection of individual buds, each bud being a distinct individual plant, and the whole tree an aggregation of such individuals. I shall have occasion to revert to this question when I come to consider the subject of vegetable nutrition.

Such are the arguments generally made use of on both sides of the question; from which it appears that much must depend upon pastures, taste, mode of consumption, markets, &c. and that both sides have their advantages. The intelligent breeder, however, (unless his pastures are of a nature peculiarly forcing,) will naturally prefer a moderate size in the stock he rears. Davis, of Longleat, one of the ablest agriculturists England has produced, has given some useful observations on the subject of size. He laments that the attempts which have been made to improve the breeds of cows, horses, and sheep, have proceeded too much upon the principle of enlarging the size of the animal; whereas, in general, the only real improvement has been made in the pig, and that was by reducing its size, and introducing a kind that will live hardier, and come to greater perfection at an earlier age.

Though it is extremely desirable to bring the shape of cattle to as much perfection as possible, yet profit and utility ought not to be sacrificed for mere beauty which may please the eye but will not fill the pocket, and which, depending much upon caprice, must be often changing. In regard to *form*, the most experienced breeders seem to concur in the following particulars:—That the form or shape should be compact, so that no part of the animal should be disproportioned to the other parts, and the whole distinguished by a general fullness and rotundity of shape; that the chest should be broad, for no animal whose chest is narrow can easily be made fat; that the carcase should be deep and straight; that the belly should be of a moderate size; for when it is more capacious than common in young animals it shews a diseased state, and in older ones it is considered a proof that the animal will not return in flesh, in milk, or in labor, the value of the extra quantity of fruit which it consumes; that the legs should be short, for the long-limbed individuals of the same family or race are found to be the least hardy, and the most difficult to rear or to fatten; and that the head, the bones, and other parts of inferior value, should be as small as is consistent with strength, and with the other properties which the animal ought to possess. In animals bred for the shambles, the form must likewise be such as to contain the greatest possible proportion of the finer compared to the coarser and less valuable parts of the animal. This, by selection, may be attained, and thus the wishes of the consumer be maygratified. As to the broad loins and full hips, which areconsidered as a point of excellence in particular breeds, it is evident that the old narrow and thin make, required improvement; but the alteration is now carried to a faulty excess, and often occasions great difficulty and danger in calving.

The form of animals has fortunately attracted the attention of an eminent surgeon, Henry Cline, Esq. of London, whose doctrines we have already laid down at length, and the substance of which is:—That the external form is only an indication of the internal structure; that the lungs of an animal is the first object to be attended to, for on their size and soundness the health and strength of an animal principally depend; that the external indications of the size of the lungs are the form and size of the chest, and its breadth in particular; that the head should be small, as by this the birth is facilitated; as its affords other advantages in feeding, &c. and it generally indicates that the animal is of a good breed; that the length of the neck should be in proportion to the size of the animal, that it may collect its food with ease; and that the muscles and tendons should be large, by which an animal is enabled to travel with greater facility. It was formerly the practice to estimate the value of animals by the size of their bones. A large bone was considered to be a great merit; and a fine boned animal always implied great size. It is now known that this doctrine was carried too far. The strength of an animal does not depend upon the bones, but on the muscles; and when the bones are disproportionably large, it indicates, in Cline's opinion, an imperfection in the organs of nutrition. Bakewell strongly insisted on the advantage of small bones; and the celebrated John Hunter declared that small bones were generally attended with corpulence in all the various subjects he had an opportunity of examining. A small bone, however, being heavier and more substantial, requires as much nourishment as a hollow one with a larger circumference.

Among the *qualities* for which thorough-bred cattle and sheep are distinguished, that of being good growers, and having a good length of frame, is not the least essential. The meaning of which is, that the animal should not only be of a strong and healthy constitution, but speedily should grow to a proper size. As specimens of rapid growth, a steer of three years old, when well fed, will weigh from 80 to 90 or 100 stone, 14 lb. to the stone; and a two year old Leicester wedder, from 25 to 28 lbs. per quarter, immediately after his second fleece is taken from him. Animals having the property of growing, are usually straight in their back and belly; their shoulders well thrown back, and their belly rather light than otherwise.—At the same time, a gauntness and paucity of intestines should be guarded against, as a most material defect, indicating a very unthrifty animal. Being too light of bone, as it is termed, is also great fault. A good grower, or hardy animal, has always a middling sized bone. A bull distinguished for getting good growers, is inestimable; but one whose progeny takes an unnatural or gigantic size, ought to be avoided.

Arriving soon at perfection, not only in point of growth or size, but in respect of fatness, is a material object for the farmer, as his profit must in a great measure depend upon it. Where animals, bred for the carcase merely, become fat at an early age, they not only return sooner the price of their food, with profit to the feeder, but in general also, a greater value for their consumption, than slow feeding animals. This desirable property greatly depends on a mild and docile disposition; and as this docility of temper is much owing to the manner in which the animal is brought up, attention to inure them early to be familiar, cannot be too much recommended. A tamed breed also has other advantages. It is not so apt to injure fences, or to break into adjacent fields; consequently it is less liable to accidents, and can be reared, supported, and fattened, at less expense. The property of early maturity, in a populous country, where the consumption of meat is great, is extremely beneficial to the public, as it evidently tends to furnish greater supplies to the market; and this propensity to fatten at an early age, is a sure proof, that an animal will fatten speedily at a later period of his life.

In the wilder and bleaker parts of a country, *the possession of a hardy and healthy constitution*, is a most valuable property in stock. Where the surface is barren, and the climate rigorous, it is essential that the stock bred and maintained there, should be able to endure the severities and vicissitudes of the weather, as well as scarcity of food, hard work, or any other circumstance in its treatment, that might subject a more delicate breed to injury. In this respect, different kinds of stock greatly vary; and it is a matter of much consequence, to select, for different situations, cattle with constitutions suitable to the place where they are to be kept. It is a popular belief, that dark colors are indications of hardiness. In mountain breeds of cattle, a rough pile is reckoned a desirable property, more especially when they are to be kept out all winter. It enables them to face the storm, instead of shrinking from it. Hardy breeds are exempted from various diseases, such as having yellow fat, also being black fleshed, defects so injurious to stock.

The prolific quality of a breed is a matter deserving attention.—The females of some breeds both bear more frequently than usual, and also have frequently more than one at a birth. This property runs more strikingly in sub-varieties, or individual families; and though partly owing to something in the habits of animals, and partly to their previous good or bad treatment, yet in some degree seems to depend upon the seasons, some years being more distinguished for twins than others. In breeding, not only the numbers, but the sex of the offspring, in some cases, seem to depend upon the female parent. Two cows produced fourteen females each in fifteen years, though the bull was changed every year. It is singular, that when they produced a bull calf, it was in the same year. Under similar circumstances, a great number of males have been produced by the same cow in succession, but not to the same extent.'

Breeds are likewise distinguished by *the quality of their flesh.* In some kinds it is coarse, hard, and fibrous; in others of a finer grain or texture. In some breeds also, the flavor of the meat is superior; the gravy they produce, instead of being white and insipid, is high colored, well flavored, and rich; and the fat is intermixed among the fibres of the muscles, giving the meat a streaked, or marbled appearance. Breeds whose flesh have these properties, are peculiarly valuable. Hence two animals of nearly the same degree of fatness and weight, and who could be fed at nearly the same expense to the husbandman, will sell at very different prices, merely from the known character of their meat.

A disposition to fatten is a great object in animals destined for the shambles. Some animals possess this property during the whole progress of their lives, while in others, it only takes place at a more advanced period, when they have attained their full growth, and are furnished at the same time with a suitable supply of food. There are in this respect other distinctions; most sorts of cattle and sheep, which have been bred in hilly countries, will become fat on low land pastures, on which the more refined breeds would barely live; some animals take on fat very quickly, when the proper food has been supplied, and some individuals have been found, even in the same breed, which have, in a given time, consumed the least proportional weight of the same kind of food, yet have become fat at the quickest rate. Even in the human race, with little food, some will grow immoderately corpulent. It is probably from internal conformation, that this property of rapid fattening is derived.

The advantages and disadvantages of fattening cattle and sheep, at least to the extent frequently practised at present, are points that have of late attracted much public attention. But any controversy on that subject can only arise from want of proper discrimination. Fat meat is unquestionably more nourishing than lean, though to digest this oily matter, there are required, on account of its difficult solubility, a good bile, much saliva, and a strong stomach; consequently none, excepting those who are in the most vigorous state of health, or who are employed in hard labor, can properly digest it. Though fat meat, however, is unfit for general consumption, yet experiments in the art of fattening animals, are likely to promote useful discoveries; and though, in the course of trying a number of experiments, errors and excesses may be committed, yet on the whole, advantage may be derived from the knowledge thus to be obtained. As the bone also gains but little in the fatting animal, and the other offal becomes proportionably less, as the animal becomes more fat, the public has not sustained much loss by over fatted animals. To kill even hogs till they are thoroughly fat, is exceeding bad economy. An ox or cow, though the little flesh it has may be of good quality, yet presents, when lean, little but skin and bone; and if slaughtered in that state would neither indemnify the owner for the expense of breeding and maintaining it, nor benefit the public. A coarse and heavy fleshed ox, which would require a very long time, and much good food to fatten, may be slaughtered with most advantage while rather lean. It is not, however, so much the extent of fat, as the want of a sufficient quantity of lean flesh, of which the consumer complains; for it cannot be doubted, that the lean flesh of a fat animal is superior in quality, and contains more nourishment, than any other meat.

Handling well. The graziers and butchers in various parts of the kingdom have recourse to the hand, and the feeling of the skin, or cellular membrane, for ascertaining a disposition to fatten; and since Bakewell directed the public attention so much to breeding, that practice has become more generally known. Handling cannot easily be defined, and can only be learnt by experience. The skin and flesh of cattle, when handled, should feel soft to the touch, somewhat resembling that of a mole, but with a little more resistance to the finger. A soft and mellow skin must be more pliable, and more easily stretched out, to receive any extraordinary quantity of fat and muscle, than a thick or tough one. The rigid-skinned animal must therefore always be the most difficult to fatten. In a good sheep, the skin is not only soft and mellow, but in some degree elastic. Neither cattle nor sheep can be reckoned good, whatever their shapes may be, unless they are first rate handlers. The improved short horned breed, besides their mellowness of skin, are likewise distinguished by softness and silkiness of hair. Too great a length, however, ought not to be aimed at, since it is not easy, in that case, to preserve a due proportion in the appearance of the animal, without which it cannot be considered perfect.

Lightness of offal. An animal solely bred for the shambles, should have as little offal, or parts of inferior value, as possible, (consistently with the health of the animal,) and consequently a greater proportion of meat applicable as food for man. This, therefore, the skilful farmer will also keep in view in selecting his species of stock. —*Loudon's Encyclopædia of Agriculture.*

ON THE USE OF LIME AS A MANURE.—By M. Puvis.

Translated for the Farmers' Register from the *Annales de l'Agriculture Francaise,* of 1835.—*(Continued from page 101.)*

QUANTITIES APPLIED.

24. The quantities of first as of second dressings of lime, vary with the consistence of soils: they ought to be small on light and sandy soils—and may, without ill consequences, be heavy on clay soils.

The dose ought to vary according as the soil is more or less pervious to water, or as drained well or ill by its texture. Small applications to soils from which the superfluous water does not pass easily, are but little felt; but if the dressing is heavy, and the ploughing deep, the lime aids the draining and adds to the healthy state of the soil. It may be conceived that the quantity of lime ought also to be increased with the annual quantity of rain that falls—because in proportion to that quantity ought the openness of the soil, and its fitness for draining, to be extended.

Nevertheless, the practices of the departments of the North and of La Sarthe seem to indicate the average dressing which suits in general for land: thus the liming of the North, which every ten or twelve years gives to the soil 40 hectolitres of lime to the hectare, or a little more than three hectolitres a year, agrees with that of La Sarthe, which gives eight or ten hectolitres every three years. The first plan gives at one dressing what the other distributes in four: as both make a like average, it may be thence inferred that the earth demands annually three hectolitres, [323 bushels to the acre,] to sustain its fecundity. But as neither the soil nor the plants consume all this quantity of lime, it is to be believed, that at the end of a greater or less length of time, the soil will have received enough to have no more need of it for a certain space of time.

MANNER OF TREATING LIMED LANDS.

25. After having, by liming, given the soil a great productive power, having put it in condition to produce the most valuable crops, which are often also most exhausting, it is necessary to husband these resources—to give manure in return for the products obtained—to employ as litter, and not as food, the straw, now increased by one half—to raise grass crops from the soil now fitted to bear them with advantage—in short, to modify the general plan, and the detail of the culture according to the new powers of the soil, the prices of commodities, and to local conveniences.

However, it is not necessary to hurry the change of the rotation. Such an operation is long, difficult, very expensive, and ought not to be executed but with much deliberation.

EFFECTS OF LIME ON THE SOIL.

26. The effects of lime, although similar to, are not identical with, those produced by marl; and the qualities of soils limed, differ in some points from those of natural calcareous soils. The grain from limed land is rounder, firmer, gives less bran, and more flour, than that from marled land: the grain of marled land is more gray, gives more bran, and resembles that made upon clover, though it may be preferable to the latter. The grain of a limed soil is more like that from land improved with drawn ashes. Limed land is less exposed to danger from drought than marled land, on soils naturally calcareous. The crop is not subject to be lodged at flowering time, when the sowing was done in dry earth.

27. In limed earth, weeds and insects disappear. The earth, if too light, acquires stiffness, and is lightened if too clayey. The surface of the argilo-silicious soil, before close and whitish, is made friable, and becomes reddish, as if rotten: it hardens and splits with drought, and is dissolved by the rains which succeed. This spontaneous loosening of the soil facilitates greatly the labor of the cultivator, the movement of the roots of the growing plants, and the reciprocal action of the atmosphere upon the soil, which remains open to its influence.

All these new properties which the limed soil has acquired, doubtless explain in part the fertilizing means which calcareous agents bring to the soil: but we think it is still necessary to seek some of these causes elsewhere.

28. Lime, according to the recent discoveries of German chemists, seizes in the soil the soluble humus or humic acid, takes it from all other bases, and forms a compound but slightly soluble, which appears, under this form, eminently suitable to the wants of plants. But as this compound is not soluble in less than 2,000 times its weight of water, while without the lime the humus is soluble in a volume of water less by one-half, it would follow that, in consequence of lime, the consumption of this substance, and the productive power of the soil would, in like proportion, be better preserved. Since the products of the soil increase much from the liming, while the humus is economised, since these products borrow very little from the soil, which remains more fertile while thus yielding greater products, it follows that the principal action of the lime consists, at first, in augmenting, in the soil and in the plants, the means of drawing from the atmosphere the vegetable principles which they find there; and next, in aiding, according to the need, the formation, in the soil or the plants, the substances which enter into the composition of plants, and which are not met with ready formed either in the atmosphere or in the soil.

The researches upon these various points are curious, important, interesting to practice as well as to science—and will lead us to explain, by means not yet appreciated, the action of lime upon vegetation.

ABSORPTION BY PLANTS OF THE PRINCIPLES OF THE ATMOSPHEPE, IN THE VEGETATION ON UNCULTURED SOILS.

29. Saussure has concluded, from his experiments, that plants derive from the soil about one-twentieth of their substance; and the experiments of Van Helmont and of Boyle have proved that considerable vegetable products diminish very little the mass of the soil. But this fact is still better proved by the observation of what passes in uncultivated soils.

Woodland that is cut over in regular succession, (*taillis*) produces almost indefinitely, without being exhausted, and even becoming richer, the mass of vegetable products which man gathers and removes, and of which the soil does not contain the principles. If, instead of woodlands thus partially and successively cut over, we consider upon the same soil a succession of forests, and, for greater ease of estimation, resinous forests, we find for the products of the generation of an age, forty to fifty thousand cubic feet to the hectare. This product is less than that of the resinous forests of many parts of the country, and yet it is nearly equal in bulk to half of the layer of the productive soil itself; it represents an annual increase of 24,000 weight of wood to the hectare—and which is produced not only without impoverishing, but even while enriching the soil, by an enormous quantity of droppings and remains of all kinds.

These products which do not come from the soil, are then drawn from the atmosphere, in which plants gather them by means of particular organs designed for that use. These organs are the myriads of leaves which large vegetables bear—aerial roots, which gather these principles either ready formed in the air, or which take up there the elements, to combine them by means of vegetable power. But these aerial roots exert quite a different and superior energy in gathering the constituent principles of plants in the atmosphere, to that of the roots in the ground—since the former furnish nearly the whole amount of the vegetable mass, while the latter draw but very little from the soil.

30. Plants may well find in the atmosphere the greater part of the *volatile* principles which compose them—the carbon, hydrogen, oxygen, and azote. But it is not so easily seen whence they obtain the *fixed* principles of which their ashes are composed. These products could not exist ready formed in the soil—for the saline principles contained in the ashes of a generation of great trees, which would amount to more than 25,000 weight to the hectare, would have rendered the soil absolutely barren, since, according to the experiments of M. Lecoq of Clermont, the twentieth part of this quantity is enough to make a soil sterile. We would find a similar result in accumulating the successive products of an acre of good meadow. It is then completely proved that the saline principles of plants do not exist ready formed in the soil. They are no more formed in the atmosphere, or the analyses of chemists would have found them there. However, as the intimate composition of these substances is not yet perfectly known, their elements may exist in the atmosphere, or even in the soil, among the substances which compose them.

Neither can it be said that these salts may be derived from the atomic dust which floats in the air; for this dust is composed of fragments organic and inorganic, carried especially to the plants themselves, and then, in estimating this atomic matter at the most, we will scarcely find in it the hundredth part of the saline substances contained in the vegetable mass produced. We ought then to conclude that the saline substances of plants are formed by the powers of vegetation or of the soil.

31. In like manner as with the saline principles, the lime and the phosphates which are formed in ashes ought to be due to the same forces, whether the roots take up their unperceived elements in the soil, or the leaves gather them in the atmosphere. This consequence results evidently from this fact—that plants grown in soils, of which the analysis shows neither lime nor the phosphates, contain them notwithstanding in large proportion in their fixed principles—of which [or of the ashes] they often compose half the mass.

THE SHEEP.—(*Continued from page 100.*)

PASTURE.

Pasture has a far greater influence on the fineness of the fleece. The staple of the wool, like every other part of the sheep, must increase in length or in bulk when the animal has a superabundance of nutriment; and, on the other hand, the secretion which forms the wool must decrease like every other, when sufficient nournishment is not afforded.

When little cold has been experienced in the winter, and vegetation has been scarcely checked, the sheep yields an abundant crop of wool, but the fleece is perceptibly coarser as well as heavier. When the frost has been severe and the ground long covered with snow—if the flock has been fairly supplied with nutriment, although the fleece may have lost a little in weight, it will have acquired a superior degree of fineness, and a proportional increase of value. Should, however, the sheep have been neglected and starved during this prolongation of cold weather, the fleece as well as the carcase is thinner, and although it may have preserved its smallness of filament, it has lost weight, and strength, and usefulness. These are self-evident facts, and need not to be enforced by any labored argument; and therefore it is that since the sheep-breeder, living in a populous country, has begun, and judiciously so, to look more to the profit to be derived from the carcase—since the system of artificial feeding has been brought to so great perfection—and a larger and better animal has been earlier sent to market, and a far greater number of sheep can now be fed and perfected on the same number of acres, the wool also has been somewhat altered in character—it has grown in length, and it has increased in bulk of fibre. *It has not deteriorated, but it has changed.* If no longer fit for the purposes to which it was once devoted, it has become suited to others. If it no longer brings the extravagant price it once did, it meets with a readier sale. The increase of the number of fleeces, and the increase of weight in each fleece, go far to compensate for the diminution of price, while the improvement of the carcase more than supplies the deficiency, if in truth there were any: so that, considering the badness of the times, and the state of agriculture generally, the sheep is comparatively more valuable to the breeder than he was before. This will be touched on at greater length when the various breeds of British sheep pass in review, and their present state and produce is compared with what they were half a century ago.

Wool is now the subject of consideration, and there can be no doubt that in Great Britain it has materially changed its character since the introduction of artificial food, and the adoption of the forcing system. Mr. Nottage states, of the Western Down sheep, that he used to get one-eighth part of the finest English wool from each fleece; but that now the quantity is so small that he does not throw it out: he does not set a basket for it at all. Mr. Sutcliffe says, that "Thirty years ago there was, in some South Down flocks, nearly as good wool grown, as the fine German that now comes into our country." Mr. Varley adds, that "he used to throw his wool extremely high to the sort—very good to the sort—but he found that the qualities generally were getting so low, that if he continued that sort of practice, he should have been looking into two of his best bins without finding a bit of wool in them." Mr. Fison states of the Norfolks, that "in 1780, 420lbs. of clothing wool grown in Norfolk would produce 200lbs. prime—in 1828, it would produce only 14lbs."

These are convincing proofs of the effect on the fleece of high keep, and the breeding for larger sheep.

In the early establishment of the improved Leicesters, it was an accusation, which their most zealous supporters did not attempt to deny, that the wool was sacrificed to the carcase; nay, the very founder of that breed of sheep stated to his namesake of Wakefield that "he had no doubt that fine wools might be grown on rich pasture lands by overstocking them, and preventing sheep from obtaining more nourishment than they had been accustomed to."

Dr. Parry, whose observations on sheep-husbandry always deserve attention, and whose opinions, except when he was deluded by his fondness for the Merinos, are very correct, says that sheep-breeders "had observed a sort of gross connexion between the food and the quality of the fleece. On the one hand, the staple of a sheep that was starved was weak, and the wool dry and unprofitable in the manufacture. On the other hand, the wool of sheep on deep inclosed pasture, or on artificial food, was found to be coarser and more intractable than that from the downs. On these two simple facts they thought themselves qualified to reason, and, as is unavoidable from insufficient premises, they reasoned falsely. They concluded that the fine herbage of the downs necessarily produced fine wool; and that none but coarse wool could spring from gross luxuriant food. Neither of these conclusions is precisely true. The fineness of a sheep's fleece of a given breed is, within certain limits, inversely as its fatness, and perhaps also (although I am not certain of this point) as the quickness with which it grows fat. A sheep which is fat has usually comparatively coarse wool, and one which is lean, either from want of food or disease, has the finest wool; and the very same sheep may at different times, according to these circumstances, have fleeces of all the intermediate qualities from extreme fineness to comparative coarseness."

All this is very true and very important; except that opinion, of the truth of which Dr. Parry confesses that he is not certain, "that coarseness of wool and disposition to grow fat are connected. The experience of the British sheep-master would prove that the finest woolled sheep will maintain themselves in tolerable condition where coarser ones will starve; and that when both are placed in a situation to exhibit their tendency to fatten quickly, and to a great extent, the fine woolled sheep will beat his rival out of the field.

"There used to be great controversy with regard to the influence of particular kinds of food on the wool. There are no decisive proofs as to this. Between diversities of food wholesome and nutritious, there will be little to choose; or rather experience will prove that an occasional change of food is not only grateful but advantageous to the sheep."

TRUENESS.

Connected with fineness is trueness of staple—as equal a growth as possible over the animal—a freedom from the shaggy portions, here and there, which are occasionally observed on poor and neglected sheep. These portions are always coarse and comparatively worthless, and they indicate an irregular and unhealthy action of the secretion of wool, and which will probably weaken or render the fibre diseased in other parts.

Comprised in trueness of fibre is another circumstance that has been already alluded to—a freedom from coarse hairs which project above the general level of the wool in various parts, or, if they are not externally seen, mingle with the wool and debase its character.

In the same term, and most important of all, is a freedom from those irregularities in the bulk of the fibres of the wool, which render it difficult at times to give it a definite name and character, and which must materially interfere with its usefulness; and also those *breaches* in the wool so singular in their appearance, which have been already described, and the distance of which from the extremity or the root will enable the observer, as has been already stated, to calculate the time when the imperfection occurred, and which may generally be traced to cold or starvation, or to some malady of the skin itself.

GRAIN WORM.

The following remarks upon this destructive insect, and its ravages in Great Britain, are copied from a communication in the Farmers' Register:

The mischief done by the wheat-fly in various parts of the kingdom, in the course of the year 1829, and the two preceding years, is frightful to contemplate. In one district in Scotland, (the Carse of Gowrie, in Perthshire,) the destruction it occasioned was estimated at little short of forty thousand pounds. In many cases, the crop was not worth the cutting down; and in other instances a fourth, a third, or even a half of the produce was destroyed. The myriads of this vermin, and the facility with which they fly from one field to another, in search of the plants in which their eggs can be safely and efficaciously deposited, seem to place their depredations beyond the powers of man to control; and hence it has been asserted, that the only means of avoiding the mischief is, either to give up the culture of wheat until the race is destroyed, by the want of the plants necessary for continuing the species, or by patiently waiting, until seasons destructive to them naturally occur. If Providence however, has created so destructive an insect, as the *tipula tritici*, or wheat-fly, it has been no less attentive, to prevent its becoming too numerous, by making it the food of other insects. Indeed, there are no less than three *ichneumons*, who seem to be entrusted with the important office of restraining, within due limits, the numbers of this destructive species, otherwise it would become too numerous to be subdued. The most extraordinary circumstance is, that one species of these ichneumons lays an egg near the egg of the fly. They are hatched at the same time; and it is ascertained, that the maggot from the egg of the ichneumon, either lays its egg in the body of the caterpillar, when it can get at it, or devours the maggot, and thus preserves the wheat from its attacks.

It is not here proposed, to enter into any philosophical discussion regarding the origin of the wheat-fly. It is sufficient to remark, that in the spring, and in the beginning of the summer, a species of fly is frequently found, in great numbers, which attaches itself to the heads of wheat, when the ear begins to appear, and where it deposites its eggs, which in about ten days after they are placed in the ears, become maggots or caterpillars. These destroy the young pickle, by sucking up the milky juice which swells the grain, and thus depriving it of part, and in some cases perhaps the whole of its moisture, cause it to shrink up, and so to become, what in the western parts of England is called *pungled*. In about three weeks after, when it has exhausted this substance, it drops upon the ground, where it shelters itself at the depth of about half an inch from the surface. There it remains in a dormant state, until the mean temperature is about 50 deg., when, vivified by the warmth of spring, it becomes a fly, about the time that the wheat produces the ear.

It is evident, that the same plan, that in our climate has been found so effectual for destroying the wire-worm, would be equally destructive to the wheat-fly, namely, that of leaving the soil which has produced the wheat untouched till November, and then exposing it to the inclemency of the weather, and in particular to the action of frost.

It has been remarked, that the greatest mischief is usually done to the late sown wheats, and that such as are sown early, receive little or no injnry. When the grain has arrived at a certain degree of hardness and consistency, (which may be the case with the early sown wheats, before the insect has made any meterial progress, or even commenced its operations,) the plant is not so liable to be injured.

It is much to be lamented that so important an object as the means of preventing the destruction of our most valuable crops of grain, should not have attracted the attention of government; by whose means discoveries might be made, which can never be expected from private exertions. By public encouragement, the inquiry would be carried on with energy, and probed to the bottom; and the most effectual means of preventing the mischief would probably be ascertained. What subject can be compared to it in point of importance? At present, we are liable every year, not only to the loss of some millions worth of grain, but to all the mischiefs of scarcity, and even of famine. These would not probably be experienced in this country, were the ravages of insects, and the destruction by the mildew prevented; objects which are certainly in a great measure attainable, if the inquiries regarding them were prosecuted with vigor, and if no expense were spared in collecting facts, and ascertaining, by careful experiments, the means by which such frightful losses might be prevented.

VALUABLE PROPERTIES OF CALCAREOUS SAND.

A curious example of a general practice of adding mineral matter to a soil, without the smallest conception, on the part of those who do so, of what they add, is to be found in the northwestern portions of Devonshire. The rock of the district is grauwacke, composed of compact acenaceous beds mixed with slate, in the greater part of which there is no carbonate of lime, while silica and alumina are abundant. The district generally is far from fertile, and makes little return to the farmer. Now it is the general practice in that country to bring sand from the sea-coast, often many miles distant, to mix with the soil, by which the productiveness of the latter is increased. It is also the general belief, that the sand benefits the soil, by loosening it, though the farmers are aware that the same quantity of other kinds of sand, which may also be abtained on the coast, will not produce the same good effects. The fact is, that the sand brought chiefly, and sometimes almost entirely, consists of carbonate of lime, being the triturated fragments of sea-shells, thrown on shore by the breakers; and thus the farmers add, without being aware of it, a mineral substance to the land in which it was deficient, and which it required to render it somewhat fertile.—*Geology applied to Agriculture.*

Young Men's Department.

WONDERFUL EFFECTS OF CULTURE.

Many plants that are highly nutritious and useful, under culture, are useless, and even poisonous, when growing in their natural state. The apple is the improvement which culture has produced upon the wild acerb crab. The uncultivated peach is said to be poisonous in some parts of Asia. The cabbage is believed to have sprung from the worthless colewort. The potato is but a small bitter root in its natural condition in the wilds of Chili. Most of the plants which furnish food to man, are multiplied in their products, and greatly improved in their quality, when subjected to culture. Every year brings to our notice some species, hitherto useless, which human industry is rendering subservient to our wants. Providence has bountifully supplied us with the materials necessary to our condition, if we will but prepare them for our use. Industry and perseverance are assured of their reward; and indolence may be sure of meeting the penalty incident to the disobeyance of a reasonable command.

What a beautiful lesson do these facts teach to the young. The wild uncultured mind, is like the wild crab, wild potato, or colewort—a comparatively useless or noxious cumbrance in society. And yet, if brought under suitable culture, how useful—useful to its possessor, and useful, like the plants we have spoken of, to the family of man. The ignorant, selfish being, who lives but for himself, may, like the fire-fly, emit a transient light, and is forgotten. He never realizes the sublime pleasures that are purchased by knowledge, and efforts to do good. While the learned industrious man, appreciating the high duties he owes to society, and actuated by an ardent desire to fulfil them, confers blessings on his species, and, living or dead, is the theme of gratitude and praise.

UNTIRING VIGILANCE, is the tenure upon which nations can long enjoy the blessings of civil liberty. This is confirmed by all history, and by the events of our own times. The necessity of exercising this vigilance now, by those who are charged with the safe keeping of our civil freedom—the yeomanry of our country—and the importance of instructing the young in a knowledge of their rights and duties, are very forcibly illustrated in the following extract, which we make from ths 4th of July Oration of the Rev. Mr. KIRK. The middle classes are emphatically the guardians of our freedom.

"What is a republican government? It is an instrument admirably contrived for the promotion of human happiness. But an instrument always implies an agent; and a good instrument loses its value by being in bad hands. What is there, for instance, in our admirable judiciary system, if our judges become corrupt? What is the value of trial by jury, if juries are composed of men who disregard the sanctions of an oath, or if our court-rooms are to become the scene of popular clamor and brow-beating? What is the right of speech and opinion, or the freedom of the press, if mobs are to become legislature, judiciary and executive, and to be secretly sanctioned by men who ought to be ashamed, and are ashamed of their connexion with them; if men who stand high, and cry, "the constitution, the constitution," with this stab in its vital parts? What is the elective franchise, and the universal right of suffrage, if the greater part of the people had either not intelligence enough to judge the merits of candidates, or patriotism and virtue enough to resist the bribes of demagogues? They are only the stake for which the more skilful play the game of intrigue, fraud and falsehood. They only tend to bring into office men who will pander to their vices and confirm their blindness and prejudices, to secure their support. Let me repeat it—you are possessed of the most perfect political institutions that man ever enjoyed—institutions, under whose influence may be trained the noblest people the earth has ever sustained. But there is no magic in these institutions. They are, after all, dead instruments. Like the best tempered sword—useless in unskilful hands—mighty when wielded by the valiant hand of the trained.—There are two elements of national greatness: a good constitution is the first—a people who will use it aright, is the other. The one was consumated by the labors of our fathers, vindicated by their swords, and bequeathed to their posterity, a monument of the highest human glory. But have we now, and shall we have hereafter, the second element of political elevation? This appears to me the subject of deepest interest to this nation—the formation of a national character. In that we shall, doubtless, unanimously agree. Whether we shall also agree as to the features of that character, and the means of forming it, remains to be seen. There are certain great principles which must be established, and adopted, and practised by this whole country, to secure the perpetuity of our government. I shall frankly state my own views, without forcing them improperly upon others, satisfied with the privilege of suggesting them to such an assembly, and on such an occasion.

A numerical majority determines every thing in this country. If that majority are capable of exercising proper vigilance, and if they are patriotic enough to exercise it, and to see that the constitution and laws are rightly administered, the most sanguine need ask no more. But if the bare numerical majority who can swear citizenship, are sunk either in intelligence or virtue too low for this, we are wrecked—inevitably lost—the day-star of hope sets in the east—the cause of human freedom is sold into the hands of some despot—and he, the worst of despots, a republican king, who will kindly take the crown at the urgent hands of the people, who confess that they cannot govern themselves. Probably few have held this fact vividly before their minds—no matter who may now fill your offices; your judges may each be a Mansfield or a Marshall; your president a Van Buren or a Harrison; your present legislators like the congress of '76; it all furnishes no security, if a bare majority of votes can be found, who will sacrifice our country for the bribes or the entreaties of the basest demagogues. With this fact vividly in view, let us look at another. We have made a bold experiment. Our arms are opened to the world. We have said to its every inhabitant—no matter what your views of liberty, and government, and duty; only come among us and become a citizen. It matters not though you have no interest in the soil, nor any other local interest; no family, no property, no feelings in common with us; though you be a refugee from justice; nay, though you have just eluded the hands of the executioner. It matters not what are your moral principles; what your connexion with foreign institutions; nor what your secret commission from them; come in among us, and you shall have an equal voice in determining the political destiny of this country. Your vote may affect the property and business of the country most seriously, and though you have neither property nor business, your vote shall go as far as that of the most deeply interested in property and trade. Nay, we go farther. We say to the despots of the continent, organize your measures and transport your men, no matter who, nor what they are; empty your prisons and poor-houses, and swear every minion upon your altar; bind his heart and conscience to your own cherished tyranny, and then send him here; and he shall scarcely have landed, before we will seat him in the places of political power, by giving him as much control of the government, through the ballot-box, as our best and most enlightened have.

Now understand me, fellow-citizens; I am not complaining; for I never shrink from carrying out my principles to their legitimate extent. I am a true republican, and know no way to be one, but by admitting universal suffrage; and requiring of a man nothing but the act of naturalization to constitute him a voter. Yet I say it is a bold experiment. It is fraught with dangers, and those dangers ought to be surveyed with an anxious eye. The majority, in this country, must be made and kept sufficiently intelligent and virtuous to preserve republican institutions. If they are not men of principle, they will not require their rulers to be such. If not well instructed, they are incompetent to judge the conduct of their rulers. Now, what shall we do to secure this great end? How can we guard our country and its beloved institutions from those very dangers which are incidental to their peculiar excellence. Perhaps some regard all this as a display of exceeding sensitiveness, discovering danger where none exists. * * * * * There yet may arise great difficulties from the conflicting constructions of the constitution, in reference to the several limits of the powers of the three great branches of government, legislature, judiciary and executive. There is danger from the fact, that the chief magistrate can be re-elected, while his power over the funds and offices of government, and over congressional bills is all but absolute. This feature of our constitution may yet shake this government to its foundation. But I am not competent to expatiate upon most of these, so as fully to show you what evils may arise from them. It is sufficient to have mentioned them here, and to urge them upon abler advocates, as topics on which they should enlighten our citizens. I know not but I might shew you that our government has a tendency to give a hot-bed stimulus to some of the bad passions of the heart, and especially to the excessive love of power. If a Cataline chooses to use the principle of universal suffrage, we have given him full opportunity to play on the people, and in fact, have rather tempted him to do it."

OFFICES OF THE SKIN.

As an incitement to cleanliness, and to exercise in the sedentary and studious—as a precaution against sudden changes of temperature, close heated rooms and thin clothing—and with a general view of preserving health, we give the following extract from Combe on Health:

Besides performing the mechanical office of a shield to the parts beneath, the skin is admirably fitted, by the great supply of blood which it receives, for its use as a secreting and excreting organ. The whole animal system is in a state of constant decay and renovation; and while the stomach and alimentary canal take in new materials, the skin forms one of the principal outlets or channels by which the old, altered, or useless particles are eliminated from the body. Every one knows that the skin perspires, and that checked perspiration is a powerful cause of disease and of death; but few have any just notion of the real extent and influence of this exhalation, such as we shall attempt to exhibit it. When the body is overheated by exercise in warm weather, a copious sweat soon breaks out, which, by carrying off the superfluous heat, produces an agreeable feeling of coolness and refreshment. This is the higher and more obvious degree of the function of exhalation; but, in the ordinary state, the skin is constantly giving out a large quantity of waste materials by what is called *insensible* perspiration, a process which is of great importance to the preservation of health, and which is called insensible, because the exhalation, being in the form of vapor, and carried off by the surrounding air, is invisible to the eye; but its presence may often be made manifest even to sight by the near approach of a dry cool mirror, on the surface of which it will soon be condensed so as to become visible.

* * *

The *largest* quantity of insensible perspiration from the lungs and skin together amounted to thirty-two grains per minute; three ounces and a quarter per hour; or five pounds per day. Of this the cutaneous constituted two-thirds, or sixty ounces in twenty-four hours. The *smallest* quantity observed amounted to eleven grains per minute, or one pound eleven and a half ounces in twenty-four hours, of which the skin furnished about twenty ounces. The *medium* or average amount was eighteen grains a minute, of which eleven were from the skin, making in twenty-four hours about *thirty-three ounces.* When the extent of surface which the skin presents is considered, these results do not seem extravagant. But even admitting that there may be some unperceived source of fallacy in the experiments, and that the quantity is not so great as is here stated, still, after making every allowance, enough remains to demonstrate that exhalation is a very important function of the skin. And although the precise amount of perspiration may be disputed, still the greater number of observers agree that the cutaneous exhalation is more abundant than the united excretions of both bowels and kidneys; and that, according as the weather becomes warmer or colder, the skin and kidneys alternate in the proportions of work which they severally perform; most passing off by the skin in warm weather, and by the kidneys in cold, and *vice versa.* The quantity exhaled increases after meals, during sleep, in dry warm weather, and by friction or whatever stimulates the skin; and diminishes when digestion is impaired, and in a moist atmosphere.

What we have considered relates only to the *insensible* perspiration. That which is caused by great heat or severe exercise is evolved in much greater quantity; and by accumulation at the surface, it becomes visible, and forms sweat. In this way, a robust man may lose two or three pounds' weight in the course of one hour's severe exertion; and if this be suddenly checked, the consequences in certain states of the system are often of the most serious description. When the surface of the body is chilled by cold, the blood-vessels of the skin become contracted in their diameter, and hinder the free entrance of the red particles of the blood, which are therefore of necessity collected and retained in greater quantity in the internal organs, where the heat varies very little. The skin consequently becomes pale, and its papillæ contract, forming by their erection what is called the goose's skin. In this state it becomes less fit for its uses; the sense of touch can no longer nicely discriminate the qualities of bodies, and a cut or bruise may be received with comparatively little pain. From the oppressien of too much blood, the internal organs, on the other hand, work heavily: the mental faculties are weakened, sleepiness is induced, respiration is oppressed, the circulation languishes, and digestion ceases; and if the cold be very intense, the vital functions are at last extinguished without pain, and without a struggle. This is a picture of the extremes; but the same causes which in an aggrevated form occasion death, produce, when applied in a minor degree, effects equally certain, although not equally marked or speedy in their appearance.

Every thing tends to show that perspiration is a direct product of a vital process, and not a mere exudation of watery particles through the pores of the skin.

Taking even the lowest estimate of Lavoisier, we find the skin endowed with the important charge of removing from the system about twenty ounces of waste matter every twenty-four hours; and when we consider that the quantity not only is great, but is sent forth in so divided a state as to be invisible to the eye, and that the whole of it is given out by the very minute ramifications of the blood-vessels of the skin, we perceive at once why these are so extremely numerous that a pin's point cannot touch any spot without piercing them; and we see an ample reason why checked perspiration should prove so detrimental to health,—because for every twenty-four hours during which such a state continues we must either have twenty ounces of useless and hurtful matter accumulating in the body, or have some of the other organs of excretion grievously over-tasked, which obviously cannot happen without disturbing their regularity and well-being. People know the fact, and wonder that it should be so, that cold applied to the skin, or continued exposure in a cold day, often produces a bowel complaint, a severe cold in the chest, or inflammation of some internal organ; but were they taught, as they ought to be, the structure and uses of their own bodies, they would rather wonder that it did not always produce one of these effects.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 21st May and 20th June inclusive. Numbers under ten not noticed.

Post-Offices.			Post-Offices.			Post-Offices.		
Albion,	Ill.	11	*Keesville, Ess.		33	Piscataway,	Md.	11
Bordentown,	N. J.	11	Lewiston, Niag.		13	Port Deposite,	Md.	11
Buck tavern,	Pa.	10	*Lovingston,	Va.	22	Princess Ann,	Md.	11
Berkshire, Tioga,		11	Lockport, Niag.		23	Penn-Yan, Yates.		16
Brown's Mills,	Pa.	11	Millstone,	N. J.	11	Sealin's Grove,	Pa.	11
Cicero, Onon.		11	*Montreal,	L. C.	17	Sackett's Harbor, Jeff.		11
Damascoville,	O.	11	Naugatuck,	Ct.	29	Tappahannock,	Va.	10
Fonda, Mont.		13	*Norwich,	Ct.	52	Upper Marlboro,	Md.	15
Ghent,	Ky.	11	New town,	Md.	19	*Wynantskill, Rens.		15
Hall's corners, Ont.		12	*Plattsburgh, Clint.		21	Yardville,	N. J.	13
Hartford,	Ct.	11						

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. Aug. 27.	Boston. Aug. 24.	Philadel'a. Aug. 27.	Baltimore. Aug. 23.
Beans white, bush........	1 50.. 1 75	.. 1 75	..1 75	1 50..1 75
Beef, best. cwt...........	5 00.. 7 50	6 00.. 7 00	6 00..7 50	7 00..8 50
Pork, per cwt............	9 50..12 75	12 00..15 00	10 50	8 00..8 50
Butter, fresh, pound, ...	22.. 24	20.. 27	17.. 19	20.. 38
Cheese, pound, ...	9.. 11	10.. 12	10.. 11	
Flour, best, bbl......	7 00.. 8 62	7 00.. 8 00	7 00..8 50	7 50..9 00
GRAIN—Wheat, bushel, ..	.. 1 62	....	1 75..1 85	1 38..1 80
Rye, do. ..	1 06.. 1 12	1 05.. 1 09	1 10..1 18	1 00..1 12
Oats, do. ..	48.. 53	55.. 58	36.. 40	25.. 37
Corn, do. ..	94.. 1 04	78.. 1 09	76.. 83	85.. 91
SEEDS—Red Clover, lb...	10.. 11	11.. 12	10.. 11	11.. 12
Timothy, bushel,.	2 75.. 3 00	2 75	2 00..3 00	2 50..3 00
WOOL—Saxony, fleece, lb.	65.. 75	60.. 75	70.. 75	50.. 68
Merino, lb..... .	50.. 65	60.. 70	60.. 70	48.. 55
1-4 and com. lb...	40.. 48	40.. 65	40.. 55	36.. 45
Sheep, ...	....	2 50.. 4 50		
Cows and Calves,........	18 00..35 00	23 00..42 50	....	25 0..45 0

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

Vol. III. ALBANY, OCTOBER, 1836.—(67 State-street.) No. 8.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*
TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—Judah Dobson, Philadelphia—Messrs. Hovey, Boston—George C. Thorburn and Alexander Smith, New-York. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

IMPORTANCE OF EDUCATION TO FARMERS AND MECHANICS.

We suggested some considerations, in our August number, with the view of showing, that all classes of the community, the professional, the commercial, and the manufacturing, have a deep interest in the increase of the products of our agriculture, and in a more general diffusion of scientific and other useful knowledge, among the cultivators of the soil. As affording additional motives for providing a better system of education, and of rendering agricultural and mechanical labor more honorable, more inviting, and more useful, we now submit a fourth proposition, to wit:—

The moral and political health of the state, depend, in a high degree, upon the intelligence and industry of the country.

Land and labor are the legitimate sources of public wealth. The first, to be productive, must be cultivated; and the labor of doing this is abridged by the culture of the mind, which is to guide its operations. But labor not only procures wealth, and the comforts and elegancies of life, but it induces, when aided by an intelligent mind, sober moral habits, and begets independence of mind as well as of fortune. Idleness, not industry, is the parent of vice and of riot. This seeks to bring merit down to its own level. Industry looks for fortune in the profits of its labor; and for the enjoyment of it in the peace and quiet of society, and the general prosperity of the state; and tends, by its example, to elevate and reform. Neither an intelligent individual, nor a well informed industrious community, are prone to mingle in the vices and tumults of the day. Hence the more intelligence we infuse into labor, the more abundant will be its products—the more honorable its calling—the more numerous its subjects—and the sounder the condition of public morals. Knowledge and industry combined, if not synonimous with virtue, are at least a pretty good indication of worth and usefulness. Should not, then, the public mind be more enlightened, that virtue may more abound.

In a government constituted like ours, which confers on all the same political rights—the same facilities for public instruction should be extended to all, that all may alike participate in these advantages, and become qualified to execute the public trusts.—And the propriety of this rule derives particular force, when applied to the yeomanry and mechanics of our country, who, from their numerical force, must be the arbiters of our political destinies, and our shield from every danger. They are emphatically the sovereigns of the land. Their will *must* control, be it for good or be it for evil. The character of the government must receive its impress from them, and its prosperity and happiness be ever graduated by the measure of their intelligence, their industry and their virtue. Attempts to establish republican forms of government, have failed in Europe, and on our own continent, by reason of the ignorance, and consequent impotence, of the great middling classes—of the rank and file of population. Learning there has been restricted to the privileged few—while the many have too often been debased to a servile condition, or have resorted to crime for a living. Power and wealth have a tendency to corrupt the higher orders; ignorance and poverty, to debase the lower classes; which have jointly contributed to annihilate, or to render impotent, the great middling classes, which here hold the balance of power, and who alone can perpetuate our republican principles. Those, therefore, who are destined to wield this power, with us, should be well instructed in the rights and duties of freemen. It is a dictate of interest, as well as of justice, that our young farmers and mechanics—the future umpires in all political controversy—the conservators of public morals—should be better instructed;—that they should be instructed in so much of science as may be useful in their calling, and as will enable them successfully to compete with the products of foreign labor at our doors—and so much in general knowledge as will fit them for the civil duties of society—so much as, with good habits, will qualify them for the duties of jurors, magistrates, legislators—and good citizens. The moral welfare of our state, and the perpetuity of our freedom, demand a higher grade of instruction in our common schools, and the establishment of new ones, adapted to the improvement of all our great branches of productive labor.

WEST NEW-YORK.

This is one of the most beautiful and fertile agricultural districts in the world. The face of the country is diversified and charming—being flat, or gently sloping, on the borders of the great lakes; more and more undulating as we recede from these; rising into hills, and assuming a more broken and diversified aspect as we approach the dividing ridge, which separates the great northern plain from the slope which feeds the Chemung and Allegany; and finally, sinking into the basins of those rivers, upon our southern border. The northern portion is divided into two great plateaus, or plains, terraced, and separated by the Mountain Ridge; which, starting from the Niagara at Lewiston, is cut by the canal at Lockport, and passing in an E. S. E. direction, forming a barrier to most of the small lakes, its identity is finally lost in the high grounds of Onondaga. The lower plain may be considered as having its eastern termination at Utica, and its southern at Ithaca, the first in the valley of the Mohawk, and the latter at the head of Cayuga Lake. This section comprises in its general level the Oneida, Onondaga and Cayuga Lakes; and such is its general level, that the canal, running east and west, is uninterrupted by locks a distance of 69 miles on one level, and 64 miles on another; and a sloop canal, from Sodus to Ithaca, in a north and south direction, which is now about being commenced, will require no lockage, except near its outlet into Sodus Bay. The canal on the upper plain, from Lockport to Lake Erie, is also unobstructed by a lock. Rail-roads are being constructed upon these great plains, in every direction, with comparative trifling expense; and villages are springing up at the points of termination or intersection, with the freshness and beauty of youth, and the enterprise and vigor of manhood. Dividing the country into three zones, the lower one may be denominated the wheat district, the one above it the grain and cattle district, and the higher one the grazing district, admirably adapted to cattle and sheep husbandry, and the business of the dairy. And we are not sure, that at no distant period, the latter will not surpass the others in the grand requisites of a prosperous, virtuous and *republican* community. The whole country is susceptible of a high state of improvement, and capable of employing and sustaining a population ten times greater than their present numbers.

West New-York belongs to the secondary formation, and abounds in the vegetable and animal matters, which are the certain and only source of fertility. Its soil is also endued with a property, not common to other formations, which, under discreet management, will render it a permanent wheat growing district—it abounds in carbonate of lime—it is a calcareous soil, in contra-distinction to the argilo-silicious, i. e. sand and clay, which prevails in other sections of the state. A calcareous soil is not only better adapted, naturally, to the purposes of husbandry, than an argilo-silicious one, from its better admixture of earths, but its fertility is longer preserved, and more easily restored. In calcareous soils, we are advised by M. Puvis, "crops, without manure, grow, feebly it is true, but without appearing to exhaust the soil in a sensible degree; in the other, [argilo-silicious,] without manure they will scarcely grow at all." Again: "Where an equal quantity of manure is given to the two soils, so different in their natures, its effects on the calcareous soil is twice as great as on the argilo-silicious soil; whence we should naturally conclude, that the faculty of imbibing the principles of vegetation from the atmosphere, [and of combining with and dispensing them to the crop, from the manures furnished by art,] is much more powerful in the calcareous soils, and the vegetables it produces, than in the argilo-silicious soil, and it is that which constitutes their greatest difference." The great agriculturist, the late John Taylor, of Virginia, maintained, that the atmosphere was the great store-house of vegetable food, abounding in the elementary matters of plants; and the argument of M. Puvis goes to show, that calcareous earth, or the matter of lime, siezes upon the elementary food in the atmosphere, and imparts it to plants, more readily and abundantly than clay or sand; and in this position he is undoubtedly correct. These facts go to multiply and strengthen the inducements for applying marl, or mild lime, to argilo-silicious soils, to increase their fertility.

But though the soils of the west are better constituted, for the foregoing reasons, for enduring bad treatment, than those of the eastern and southern sections of the state; though they will wear longer, and can be more easily renovated, their fertility is by no means inexhaustible, as some seem to imagine. Even the beautiful lakes would in time be dried up, from evoporation, were their waters not constantly replenished by streams and springs. So will the soil become exhausted of its fertility, if vegetable matter, the food of plants, is annually carried off, and none returned; and although a new stratum of fertility may be brought to the surface by the trench plough, or clover made to alternate with wheat, these will but prolong, not perpetuate, fertility. The substratum will in its turn become exhausted; and the clover, even should it not, as we suspect it will, soon fail in its accustomed returns, will but illy compensate, in the food it gives to the soil, for the exhausting effects of the wheat crop. We here repeat, that within our recollection, the whole of the wheat and flour sent down the Hudson from Albany, Troy, &c., and the quantity was great, was grown in the valley of the Mohawk, on the eastern borders of Lake Champlain, and in the counties of Albany, Rensselaer, Saratoga and Washington,—and that these districts do not now grow one-fifth of the wheat required for the use of their population.

It appeared to us, from superficial observation in passing through the country, and without making any pretensions to geological science, that the strata of West New-York was originally deposited in nearly horizontal layers, by a great aqueous revolution, the different strata of clay, sand and lime, and the intermediate gradations or mixtures, alternating with each other; that after having levelled it in surface, in the process of passing off, to a lower level, by the disrupture of some opposing barrier, the waters, by abrasion, formed in it basins or hollows, or, where operating with less force, left an undulating or rolling surface, and wore through, and carried off, more or less, according to the depression of the underlaying strata; and that no great internal convulsion of the earth had subsequently happened to disturb the horizontal position of the layers. We inferred, from this conviction, that at the same elevation, upon each of these great plains, or basins, the character of the soils, as regarded their earthy constituents, were nearly similar. We noticed, that clay loam, sand loam and sand predominated as we ascended from the lower levels. And here we will quote an idea of M. Puvis, which we think is peculiarly applicable, and may be highly serviceable, to the west. It is—"that the formations in any one basin being composed of the same fragments, and owing to the same revolutions, the soils of these basins presents, through their whole extent, a great analogy; and consequently, the practices of agriculture which have succeeded in one point, may be applied, the difference of climate excepted, to the analogous formations; agriculture perfected on some points of a basin, may give lessons almost certain for its whole extent." If the truth of our conjectures should be confirmed by geological investigation, and the order and depth of the different deposits determined, the discovery will greatly aid the purposes of agriculture, and facilitate the discovery of gypsum and other fossil productions.

The farms in West New-York are of princely dimensions, varying from two hundred to twelve and fourteen hundred acres. The farm buildings, where the country has been long settled, are large, substantial and often splendid; too often lacking, however, the accompaniments of a good garden, and those rural embellishments, which are ever an indication of comfort, taste and refinement. But of the farming, we cannot say it is good—it is generally improvident and bad; and there are two cogent reasons, we apprehend, which will prevent immediate and extensive improvement, viz. the natural fertility of the soil and the great extent of the farms. The cultivators seem content with the ample patrimony which nature has provided for them, without heeding the admonition, with which older settlements are replete, that soils, under a reckless management, will diminish in fertility. Their study is, rather to increase their acres, than to preserve the fertility of those they already possess. Nay, many affect to believe, that their lands will continue to produce great wheat crops, without deterioration, and without manure, especially if this crop is alternated with clover. We will state a fact that will prove the fallacy of such calculations. One of the most intelligent farmers of the west, who has occupied a first rate wheat farm for about twenty years, near the outlet of Seneca Lake, told us that he had kept an accurate account of the product of his wheat crop; that dividing the time of his occupancy (he took it in its wild state) into three equal periods, he ascertained that the average product of the first period was 29 bushels of wheat per acre; of the second period 25 bushels, and of the third and last period 20 bushels per acre—thus showing a diminution of products, and consequently of profits, in this short period, of thirty-three per cent, or one-third. This diminution, at the present price of wheat, would amount to twenty dollars the acre per annum. Thus two acres of land, in its virgin state, gave as great a product as three acres do now, and with less labor to the acre then, probably, than is required now. We ought to add, that our informant, contrary to common practice, has been in the habit of saving and applying his manure, and of alternating clover. With regard to the quality of farming, it is impossible to manage a very large farm well, though it may be managed with great *present* profit, with the limited capital and labor, which it is there customary to expend upon them. The tendency must constantly be to deterioration, and to a consequent diminution of acreable profits. The vallies of the Hudson and Mohawk have been once as celebrated for their fertility as the west now is; but a reckless system of cropping exhausted it. But brighter times are dawning upon us; a better system of farming is restoring to the soil its wonted fertility; science is contributing her aid; and these vallies, at no distant day, will make as large returns to agricultural labor as any portion of our country. Let the west be admonished by these lessons, and learn to be provident of the munificent bounties of Providence.

Although, from the preceding considerations, we do not look for great and immediate amelioration in the condition of western farming, yet there are improvements of such manifest advantage, and involving such trivial expense, that we may hope to see them gradually introduced. We will now speak particularly of two of the more prominent—MANURING and DRAINING, which lay at the foundation of good husbandry.

We may as well expect our farm stock to become fat without the provident care of man, as to expect that our soil will continue to afford its accustomed yield, without returning to it something of the vegetable matter which we are annually taking from it. To make fat animals, we cultivate for, and feed them with, the grain, the pulse, the roots and the grass of the farm. If we would make good crops, we must in like manner provide them with an abundance of nutritious food,—which is furnished to our hands in the dung, straw, and animal and vegetable refuse of the farm, which constitute the true aliment of plants. And yet, notwithstanding the self-evident truth of these propositions, we were astonished to see, in the whole route from Utica to Buffalo, a recklesss disregard of this primary maxim of good husbandry. We saw vast accumulations of manure in the cattle yards, and immense quantities of straw about the outbuildings and in the fields, seemingly regarded as incumbrances rather than as precious sources of fertility and of profit, and we often saw neighboring cornfields literally starving for want of this vegetable aliment. On asking an inhabitant why piles of manure, which we pointed out, were suffered to accumulate, year after year, till they rotted the cills and sides of the barn, and why they were not carried to the field, he replied, with great *sang froid*, that the soil was already rich enough. We mean to except from these general remarks, many notable instances of judicious and enlightened husbandry.

No country is better adapted to improvement by underdraining, than many districts of West New-York. There are immense plains, gently sloping, either possessing a clay soil, or resting upon a subsoil impervious to water, on which crops are liable to suffer greatly from the extremes of wetness and drought. The skill and labor of the farmer should be employed to guard against these extremes; an ignoramus may raise good crops when he has a good soil, and a good season. The inclination of the surface is not sufficient to enable the excess of water to pass off readily after heavy rains, and the soil or subsoil will not permit it to pass into a lower and more porous stratum; the consequence is, that it reposes in excess, in wet seasons, near the surface, and becomes highly deleterious to the growing crops. The ground, from being thus saturated and distended with water, on the occurrence of drought, exhibits the other extreme,—it contracts, and hardens like a brick bat, exhibiting fissures or cracks in every direction. Did the water merely filter through the soil, and pass off, as it would do in underdrains, and does on steep declivities, the surface would remain comparatively porous, neither distending nor contracting much, and pervious to the kind influences of the sun and atmosphere. Clay never becomes so compact and hard as when, highly saturated with water, it is poached with the tread of animals, and afterwards dried by the sun. And this evil is likely to increase as the soil, divested of its vegetable matter, an inevitable consequence of hard, and even of ordinary cropping, becomes consequently more compact and impervious. If water reposes within the reach of the roots of plants, it necessarily excludes air from them, which is an indispensable requisite to the decomposition of vegetable food, and to the healthy development of cultivated crops.

The cultivation of the land in narrow or moderate ridges, in the direction of the main slopes, would, in some measure, remedy the evil; sowing on the first furrow, the fallow being a grass ley, and the furrow-slices being made to lap on each other, so that each should become an underdrain, would effect a further improvement; but the only thorough cure must be sought for in a system of thorough Scotch underdraining, which will pass off any excess of water, which may penetrate the surface, or rise from springs.

But with all the fertility, all the beauty, and all the enterprise and thirft, which latter are great, there is lacking in a great portion of the west, one of the essential comforts of life—*a supply of pure water*—and there is likely soon to be—*a want of timber for fencing and fuel*—another of what we class among at least the conveniences of life. Water, for farm and family purposes, is scarce in the northern section, and the quality indifferent or bad. There is little or no waste land; and the fear is, that the hope of present gain will induce a wanton destruction of timber, so as to leave the next generation comparatively destitute. Providence seems wisely to have furnished to every country some of the good things of life, but to no country all of them, lest man should forget his dependance and his duties. The want of water may in a great measure be remedied by artificial ponds, filtering cisterns, and probably by artesian wells. The inclined plane and tenacious soil are well adapted for the first, as the surface water may be readily concentrated at a desired point, and clay soils require no puddling, though bottoms of ponds should be bedded with stones or gravel. If constructed at the intersection of division fences, the same pond may serve for three or four enclosures. If a system of underdraining is adopted, the water drained off may be conducted to these ponds, or into tanks or troughs, accessible to cattle. For culinary and other family uses, rain water, when filtered, possesses the highest value. Every house might, at no great expense, have a durable filtering cistern constructed, made of cement and stone or brick, and upon Foster and Van Kleeck's patent circular plan, which would receive the water from the roofs of buildings, and purify it for use. And lastly, artesian wells, in which the water rises to the surface, or nearly to it, we believe, from the general configuration of the country, might be resorted to with strong probability of success. We saw, near Geneva, a well of this character, from which constantly flowed a large stream of water. It is our intention, as soon as we can collect the requisite data, to describe the mode of boring artesian wells. We give, in another column, directions for making artificial ponds and filtering cisterns.

New discoveries of gypsum have recently been made in Arcadia, Wayne, contiguous to the canal, and in Wheatland, Monroe, in the line of a rail-road now making. The gypsum, in both cases, is found near the surface, in quantities, and of the ordinary quality of western plaster. Its contiguity to the canal and a rail-road, will greatly facilitate its transportation, and enhances the value of the discovery. In Arcadia we saw two large structures on the margin of the canal, for grinding the stone.

BEET SUGAR.

M. Pedder's Report.—We have before mentioned, that some gentlemen had associated at Philadelphia, and, we might have added, under the style of the "*Beet Sugar Society*," for the purpose of introducing into the United States the culture of the sugar beet; that they had employed Mr. James Pedder to proceed to France to procure the required information, in regard to the culture of the root, the process of manufacture, &c. &c. Contributions were solicited to defray the expense of the embassy, and one gentleman of our city, noted for liberality, we understand, gave $200, under the impression that the object was *public* good, and that the information to be obtained was to be freely imparted, for public benefit. Mr. James Pedder has been to France, has sent home seed, and has returned, and the result of his inquiries has been published by the "*Beet Sugar Society of Philadelphia*," in a pamphlet of 40 pages, 8vo., copy right secured, and is offered for sale at the modest price of 50 cents the copy! The pamphlet does not contain more matter than is contained in one number of our Cultivator, which sells at four cents. We have no sort of objection, that the Beet Sugar Society of Philadelphia should speculate in subscriptions, in beet seed, and in the sale of their report—we only want the public to know the matters of fact.

The copy right of the report being thus secured, we are debarred from making extracts, and must content ourselves with a brief summary, and refer the reader to the report for particulars, which, to those who mean to go into the culture and manufacture, is worth fifty cents. In this summary we avail ourselves, too, of the *gratuitous* information furnished by M. Iznard, French Vice-Consul at Boston, to the trustees of the Massachusetts Society for Promoting Agriculture.

The soil most suitable for the beet culture is, according to M. Iznard, one that is deep, light, rather sandy, but rich. Mr. Pedder says a healthy subsoil is indispensable; and that with this prerequisite it may be cultivated on almost any soil. No manure; as beets raised on manured grounds, says M. Iznard, have proved to contain salts detrimental to sugar.

The species of beet.—Iznard says the white German (not the mangold wurzel) is the best; Pedder says the white Silesian and the rose colored are the only kinds sown in a large way. Chaptal prefers these.

Preparation of the grounds, sowing, &c.—The ground ought to be trench-ploughed, and well pulverized. The seed is sown in France the last of April and first of May—from the first to fifteenth May in latitude 42 deg.—in drills from 20 to 24 inches asunder. Mr. Pedder says sow eight pounds seed to the acre.

Cultivation.—Good cultivation, says M. Iznard, is all important, in order to enhance and perfect the saccharine principle, and to facilitate the several processes for obtaining the sugar. This means, thin the plants, extirpate all weeds, and keep the surface of the soil loose. The implements, the cultivator and hand hoe—Chaptal used the plough.

Taking up the crop.—Pedder says, as soon as the roots have completed their growth—September or October. Chaptal says, as soon as their larger leaves begin to turn yellow, as after this the saccharine principle may disappear, in consequence of a new elaboration of juices after maturity, and salt petre be generated instead thereof. The leaves may be fed to cows, sheep or swine. In Germany they are dried, for winter forage. The roots should not be bruised. They are taken up with a spade.

Preserving the crop.—The mode we have recommended for ruta baga, where cellars will not suffice—in trenches upon dry soils, two or two and a half feet broad, two and a half or three feet deep, and as long as you please, crowning the top with roots, covering with sufficient earth, and perforating the crown with a bar to let off the warm or rarified air. Beets suffer from heat as well as from frost.

Profit of culture.—The common price in France, paid by the manufacturer, is ten francs (= to $1.85) the 1,000 pounds. The yield is from 40 to 52 thousand pounds—medium 46,000 the hectare—equal to 85 dollars. The tops will buy the seed. Where the culture and manufacture are connected, and the business managed to the best advantage, Mr. Pedder estimates the cost of the sugar to the manufacturer at four and a quarter cents per pound, taking into the account the value of the cake and molasses for feeding cattle and sheep, and the value of the manure these make.

M. Iznard estimates the benefits which a farmer will derive by the cultivation of one acre with beet for the making of sugar, as follows:

800 lbs. good Muscovado sugar, at 8 cents per lb.........	$64 00
50 galls. molasses, for distilling or feeding, at 16 cents,....	8 00
4 tons pumice, or cake, for cattle, $3 per ton,............	12 00
1 ton of leaves, or their value as manure,................	5 00
Total,............................	$89 00

The expense of manufacturing, we presume, to be deducted from the above total.

The manufacture of sugar, consists of seven distinct processes, viz. 1. Washing or scraping the roots; 2. rasping or crushing the roots; 3. pressing the pulp by hydraulic press; 4. diffication, or purifying with lime; 5. evaporation, in which process some animal charcoal is added; 6. clarification, during which most of the animal carbon is added; and 7. concentration. When an excess of lime is by accident applied, it is taken up by diluted sulphuric acid, in the proportion of 44 of water to 1 of acid. We refrain from attempting an abstract of these processes, and of the implements and vessels employed, as it would only tend to embarrass the novice. We refer to the report, or to Chaptal.

Product.—The beet root gives from four to seven, and in one instance Mr. Pedder says, he knows it gave eight and a half per cent of sugar. This consists of first, second, and third qualities; though it is advisable not to crystalize the third quality, it being more valuable left in molasses, to be fed with cut straw to cattle. Assuming six per cent as the medium, and the average crop at 23,000 pounds the acre, the product of an acre is divided by Mr. Pedder as follows:

Sugar, 1st and 2d quality, ...	2,400 lbs.
Molasses, 2 per cent,.......................	800 lbs.
Cakes, 15 per cent,.........................	6,000 lbs.
	9,200 lbs. per acre.

Value of the cake, &c.—The beet, in all its varieties, is a valuable crop, cultivated merely as food for cattle. By the above estimate it is made to appear, that the acre not only produces 3,200 pounds of sugar and molasses, but nearly 10,000 pounds of pumice, or beet cake, *of more value to stock*, as M. Iznard has shown, *than ten thousand pounds of beet root before the sugar and molasses have been extracted.* For the entire beet contains 85 to 90 per cent of water—the water being expressed from the cake, leaves in it, after pressure, a greater proportion of saccharine matter, as compared to the water, than it contained before pressure. The molasses too, amounting to 800 pounds, fed with cut straw or hay, will go far in subsisting or fattening stock. M. Iznard sold his cake, for feeding cows, higher, per cwt., than the price of beets. The cakes are preserved in magazines sunk in the ground, where they are beaten hard and left to ferment, and are used six and nine months thereafter.

Drill barrow.—A drill barrow, for sowing beets, and most other seeds, is described by Mr. Pedder, with eight wheels, in two setts, three being used for beets, or five for wheat. It is evidently on the principle of the one described in another column, invented by Mr. Meacham of Chenango. Price of the French drill 100 francs. He also speaks of a *Barrow Hoe*, which is pushed forward between the rows, is simple and of great use in row culture; and of a superior *hand hoe*, having a long crooked neck, which permits the weeds to pass over—similar, we suspect, to our turnip hoe.

Family Manufacture.—Mr. Pedder saw the family establishment of Mons. Lecerf, who obtained a premium for home manufacture. The labor was performed in one of his rooms, and the cost of all his machinery and apparatus did not exceed 500 francs.

Miscellaneous.—The practice of strewing the sheep yards with lime, as mentioned in a late Cultivator, to prevent the foot-rot, is common in France. The estimated cost of a sugar establishment. employing 80 men, and producing 110,000 pounds of sugar, $5,200. Rent of lands $8—taxes $1.12½ per acre. The season of manufacture lasts from 10th September to 15th April. The cost of cultivating an acre, including rent and taxes, about 110 francs (about $20) labor cheaper than with us.

If the preceding estimates are any where near the truth, and we see no reason to distrust them, they satisfactorily demonstrate, that the cultivation of beets, in the United States, for sugar, can and will, ere long, be made one of the most important and profitable branches of American husbandry.

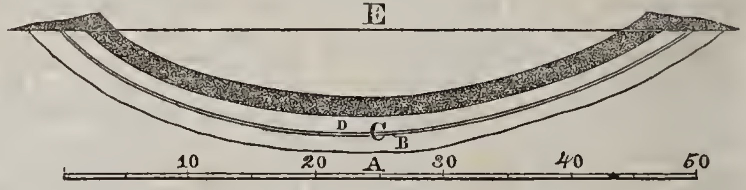
The Beet Society propose to import a large quantity of seed. **Orders for seed may be sent to JACOB SNIDER, jr., Philadelphia.**

ARTIFICIAL PONDS.

These are constructed in districts, and on farms, destitute of streams, into which water is conducted in the wet season or after heavy rains, or by means of underdrains, for the use of the farm stock in dry seasons. They are generally constructed at the intersection or on the line of division fences, so as to be accessible to two or more enclosures. They are economically constructed where there is not, permanently, water upon the surface for the supply of cattle, and are a cheaper and better expedient than wells. These ponds are generally round, about 45 feet in diameter, the banks sloping in an angle of about 40 degrees, and affording a depth of water in the centre of about five feet. Common clay, well mixed by means of water, closely tramped, and then pounded tight with a paver's mallet, will make a tight bottom; and when made, should be covered with a coat of fine gravel, beaten in. Where the soil, therefore, consists of a tenacious clay, the labor of construction consists in merely making the requisite excavation, and in finishing the bottom as above directed. The labor may be all performed by the farm hands, and the expense will be comparatively trivial.

But where the soil and subsoil are porous, as in sand, gravel, &c. greater labor and expense must be incurred, to prevent leakage. The following instructions for constructing *artificial ponds on dry soils*, with the subjoined cut, is taken from the 6th volume of the *Annals of Agriculture.* This mode has been successfully practised in Yorkshire, (Eng.) for many years.

Fig. 39.



"The line A, describes a circular hole made in the ground, of such size as may be found necessary; and on which a stratum of clay, B, must be carefully beaten, and trodden into a solid, compact body, from four to six inches in thickness.

"C represents a layer of quick-lime, about an inch, or an inch and a half thick; and which should be uniformly spread over the whole.

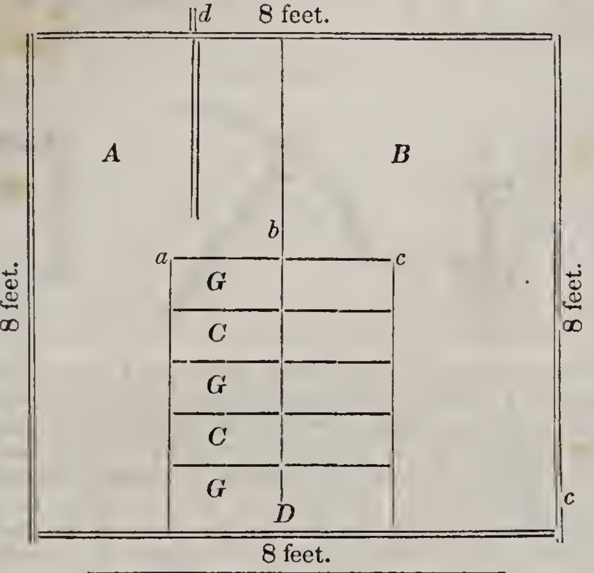
"D is a second stratum of clay, that ought to be of a thickness similar to that above mentioned, and should be pressed down in the same manner.

"Either stones or gravel must be spread on the second layer of clay, to such depth as may prevent the pond being injured by the feet of cattle; for otherwise, they will penetrate the stratifications of clay and lime; in consequence of which the water will be discharged through the pores of the earth. When thus completed, according to the section above given, the pond will remain five feet deep, and forty-five in diameter; the letter E, representing the line of level, both of the water and the ground. The expenses attending a work of the dimensions above stated, are computed to be from £4 to £6, (=$17.66 to $26.64,) according to the distance from which the clay is carried. Such a pond will remain unimpaired for a series of years; because the lime prevents worms from striking either upwards or downwards, and consequently from injuring the clay, which naturally resists moisture."

FILTERING CISTERN.

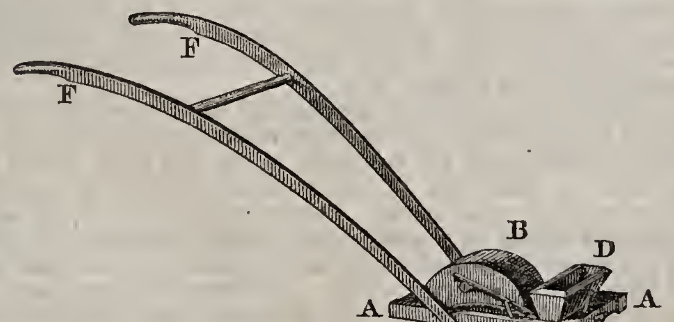
We give below a diagram of a filtering cistern, for rendering rain water pure, fit for drinking and all culinary purposes. It may be constructed either round or square, of brick and water lime, or, what we deem cheaper and better, of rubble stone and water lime, upon Foster and Van Kleeck's plan. To construct a common cistern on their plan, 6 feet in circumference, and 6 feet deep, will require three barrels of lime, two loads coarse sand and two loads of rubble stone, and a day and a half labor for three hands. In the diagram below, the dimensions are assumed to be eight feet square; *b* is a partition passing through the centre, with an aperture at the bottom, for the water to pass from chamber *A*, to chamber *B; a* and *c* are two close partitions, rising three feet from the bottom. The water is conducted into the cistern, by the spout *d*, falls upon the alternating strata of gravel and sand, *G C*, which are each 6 inches in thickness, passes to the aperture *D*, in the main partition, rises through the like strata in chamber *B*, from which latter it may be drawn by a cock at *c*, perfectly pure and fit for use, or raised by a pump. The gravel employed should be coarse and clean; the charcoal pure, and well pounded. There are three strata of gravel, as indicated by *G*, and two of charcoal, *C*.

Fig. 40.



New Drill Barrow.—We have received from the inventor, Mr. Niram R. Merchant, of Guilford, Chenango co. the compliment of a Drill Barrow, of peculiar simplicity and cheapness; and if we are permitted to judge from its appearance, without having given it a trial, it will be found a very economical and useful implement in the hands of every farmer and gardener in the country, who is not already provided with a drill barrow. Mr. Merchant has been selling the machines at $2 each. It may be adapted to the sowing of turnips, onions, radishes, beans, beets, &c. by manual power, and by multiplying the wheels, or rather, by uniting several machines, for horse power, it may be used in field culture, for mangold wurtzel, wheat, &c. Thus combined, we think it would resemble the drill used in France, in sowing the beet for sugar, which Mr. Pedder highly commends, and which there sells at 100 francs. This barrow is represented in the cut below. A, A, are the two sides of the frame, 16 inches long, connected at each extremity by cross pieces. B, is a wheel, 10 inches in diameter, and 4 inches broad, made of wood. C, is a coulter attached to the forward cross piece. D, is the hopper, in which the seed is placed. F, F, are the handles, by which the machine is impelled and guided. Back of the hopper, is a roller, attached to which is a metal slide, not perceptible in the cut, perforated with a hole of the size of the seed to be sown, which slides close to the bottom of the hopper. The roller is moved when the machine is in motion, by stout wires seen in the diagram. When the machine is in motion, the coulter, C, makes the drill, into which the seed immediately drops; two pieces of round iron project down diagonally, from the sides, which throw the mould upon the seeds, and the wheel then passes over, and operates as a roller.

Fig. 41.



Wilson's Mowing Machine.—This machine is figured and described in another page, to which we refer the reader. It was received so late that we have only time to say, that we have seen it in operaton, and think it well adapted to economise labor in large, smooth-bottomed meadows, where the inventor designed to have it operate.

Wheat Worm.—We observe, in the Genesee Farmer of the 3d of September, an interesting article upon this insect, from the pen of Willis Gaylord, one of the best agricultural writers of our country. Mr. Gaylord closes his paper with the remark, that "since it appears that in many instances the fly is perpetuated by the eggs of worms *enclosed in the wheat sown*, would it not be good policy to use wheat two years or more old for seed, as such wheat, if it were originally affected with the worm, must have lost them by their previous transformation?" If the egg of the worm *is* deposited on the seed, of which we have strong doubts, it is not *exclusively* so. In 1834, we obtained select seed, from the mouth of the Genesee river. The crop looked very flattering, till the heads were developed; and yet we estimated that seven-eighths of the crop was subsequently destroyed by the worm. The seed was sown late in October. Last fall we received a sample of wheat from New-Jersey, which was sown in our garden. The worm has literally destroyed it all. A few grains of spring wheat from Rome, was sown in our garden late in May. It is now, Sept. 9, in the milk. On a close examination, we do not find any of the worm in it. The seed from Genesee and New-Jersey, could not have contained the egg of the insect. Our observation seems to confirm the opinion, that the insect appears about the time that wheat, sown the last of September, or the early spring sown varieties, comes into ear, and that it remains but a few days in the maggot state; and that the early fall, or late spring sown crops will be most exempt from its attacks. We have used salt and lime, in all the ways suggested, without discovering in them any preventive of the evil.

The Season has been highly inauspicious to the farmer, and to the country. The hopes, feeble as they were, of tolerable fall crops, have, in many districts, been already blasted by the early frosts.—A letter from Seneca Falls of the 10th Sept. says, "Our corn is all cut off by the frosts. I am cutting up mine. Our buckwheat is equally destroyed. Our wheat, in threshing out, produces not much more than half what the bulk of straw warrants the anticipation of." We learn that the frosts have been equally severe in many other sections of the state. We ascribe our exemption from frosts, to the circumstance of our land being well underdrained, by which humidity has been prevented, and the soil become charged in a higher degree with caloric, while our neighbors' crops have suffered.

The prospect before us strongly admonishes to prudence, and the husbanding of all our means. As one of the available means, we mention the products of the orchard, as applicable to the sustenance and fattening of hogs—in place of corn and other grain, and for the winter feeding of all farm stock. Another and a great saving may be made by *grinding* all the grain which is fed out, and by *cooking* all our hog-feed. By these items of economy, good judges have estimated that a saving of one-half is effected. Nor should we fail to economise our hay and corn-stalks; for although hay has been a good crop, the scarcity of grain and roots will enhance its value. Remember that a saving of 30 per cent is effected by the use of Greene's Straw Cutter; that in feeding 30 tons of hay, this saving amounts to 9 tons, which at $10 per ton, gives the round sum of $90—enough to buy three Straw Cutters, or one and $60 worth of New-Year's presents for the wife and girls—or a snug Farmer's Library.

After we had penned the above, we learnt verbally, and by the public journals, that the frosts have been more extensive and injurious than we anticipated; and that most of the corn and buckwheat in the north have been partially or wholly destroyed. A Maine paper represents, that the corn in that neighborhood has been killed before it had become fit to boil; and we are told in the Buffalo Whig, that the frost of the 12th ult. had "swept all before it," in the south towns of that county. On the other hand, the late warm weather has been highly advantageous in ripening the fall crops, in districts which had escaped frost. Our corn crop was harvested in fine condition before the frost affected it.

Top-dressing Grass Lands.—An important fact in regard to this matter, has been communicated to us by an intelligent visitor, viz. *that the same quantity of manure is twice or thrice as beneficial on* young *as it is on* old *meadow.* Plants, like animals, if stinted or half starved when young, seldom acquire great vigor or luxuriance afterwards; the organs of nutrition become adapted to the early supply of food, and cannot be readily enlarged, on its being increased in advanced age. Hence the advantage of employing rich soils for nurseries—of keeping *young* farm stock well—and of applying manures to *young* grass. A gentleman top-dressed some grass lands at one, two and three years old, and he found the benefit to the first, double what it was to the second, and treble that shown by the third. The hint is one of some importance to husbandry, and we hope it will be improved upon. The rule *does* hold good in regard to animals.

PLANTING, No. IV.—METHODS OF PROPAGATION.

The modes of propagation are, by seeds, by suckers which spring from the roots, by layers, by cuttings, and by grafting.

By seeds.—These may be sown in nursery beds, in drills or broadcast, or in the ground where they are intended permanently to grow. In both cases, where practicable, the ground requires the best preparation that it ought to receive for a corn crop; and in both cases cattle must be wholly excluded, the plants kept clean, and the ground kept in a loose friable state, till the plants are of size to plant out. For the oak, chesnut, walnut, and, indeed, for most other forest seeds, the drills should be four feet apart, and the seeds placed at the distance of two inches in the drills. The plants should be thinned, so as to leave them one foot apart, if in the plantation, the second or third year. Farinaceous seeds, covered with shells, as the oak, chesnut, beech, plane, maple, ash, &c. are least adapted for keeping good out of the soil. They should be well dried in the sun and air, if intended for spring planting, and continue spread in layers on a cool dry floor. The smaller kinds of seed, after being sufficiently dried, may be kept in smaller space. The elm, soft maple and plane, we can say from experience, may best be sown in May, as soon as they are gathered. These seeds require different degrees of covering in the soil. The larger seeds, as of the chesnut, oak, &c. should be covered with two inches of mould; for the smaller seeds, of the hard maple, linden, ash, &c. it will be proper to mix with them sand, in quantity about equal to their bulk, placing the mixture on the ground a foot in thickness, and covering that an inch thick with mould. Hard seeds, or stones, as cherry, mountain ash, thorn, &c. with the exception of the first, remain in the soil one or two years before they begin to vegetate. To save trouble, these seeds may be kept the first summer, in sand as above directed for the hard maple and ash, and sown in the autumn or spring following. Cover the smaller seeds, when sown, with one inch of earth. The seeds of the common and honey locusts, may be covered also an inch. The like rule applies to seeds of evergreens—the largest seed the deepest.

By suckers.—The common locust and the poplar afford these in abundance, as does the pear, plum, cherry, &c. They are generally sufficiently rooted the first season of their production, and they should not be suffered to remain longer than two seasons attached to the root of the tree; for if continued longer, the support they derive from the parent root, prevents them from making independent roots of their own, in such abundance as they do when separated or taken up at an earlier period.

By layers.—Among the trees that may be propagated in this way, are the maple, beech, ash, birch, mulberry, lime or linden, and elm. We described the mode of propagating by layers, and also by cuttings, in our April number.

By cuttings, the plane, poplar, willows and maiden hair tree may be propagated. Shoots of one year's growth should be selected, from the most healthy and free growing branches.

By grafting.—Even grafting is resorted to, in forest tree propagation, for those varieties of trees which lose their distinctive characters when reproduced from seed, and which make finer trees when grafted on free growing stocks of their own species. We have in our grounds, many elms, ornamental ash and horse chesnuts, imported from Great Britain, which have been thus propagated by grafting.

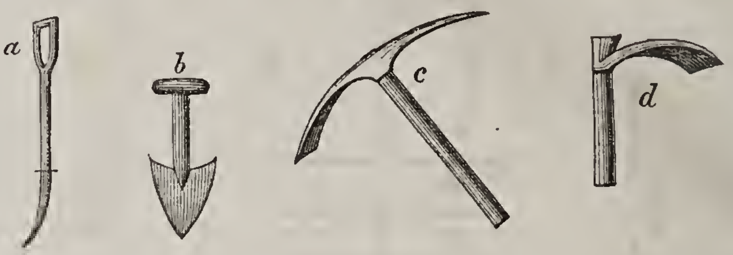
In forest planting, the trees are set at the distance of three to five feet apart, according to their species and nature of the soil; and are generally thinned every five years, to suitable distances, to accommodate their growth. They are pruned, to increase their growth and improve the quality of the timber. The branches should at all times occupy one-third of the heighth of the bole or stem—the leaves of this portion being at least necessary to elaborate food for the tree.

MODES OF TRANSPLANTING.

The different modes of transplanting are termed, 1. Slit planting; 2. Holing, or piting; 3. Trench planting; and 4. Furrow planting.

Slit planting is the most simple, and is practised on soils in their natural state, without any preparation of holing, ploughing or trenching. It is performed by three kinds of instruments, viz.—by the *moor planter*, (*a*, fig. 42,) by the *diamond dibble*, (*b*,) and by the common garden spade.

Fig. 42.



1. The *moor planter*, (*a*,) or *prairie planter*, is a heavy instrument, consisting of a wooden shaft and handle, two feet nine inches in length, two and a half inches broad at the insertion of the shaft, and gradually tapering to the point. The handle is made sufficiently large to be grasped by both hands, and the operator, with one stroke, drives the prong into the ground to the depth required for seedling trees, and by depressing the handle, the point of the instrument raises up the earth, leaving a vacuity or opening in loose earth, into which, a second person, (a boy will suffice,) holding a plant in readiness, places the root, and with the foot fixes it in the soil.

2. The *diamond dibble*, (*b*,) is made of a triangular plate of steel, furnished with an iron shaft and wooden handle. The sides are each four inches long, and the upper part or side four inches and a half broad. It is used for planting on sandy and gravelly soils, where the surface produce of herbage is short. In this case, the planter makes the ground ready with the instrument in one hand, and inserts the plant with the other. He carries the plants in a bag or basket suspended from his waist; he strikes the dibble into the ground in a slanting direction, so as to direct the point inwards, and by drawing the handle towards himself, an opening is made, and kept open by the steel plate for the reception of the roots of the plant by the other hand. The instrument is then removed, and the earth made firm about the roots of the plant by a stroke with the heel of the instrument.

3. By the *spade*, a cut is made in the turf, and crossed by another at a right angle: the two cuts thus made resemble the figure of the letter T. The handle of the spade being depressed backwards, forces open the edges of the cuts, and in the opening thus made, the roots of the plant are inserted; the spade is then withdrawn, and the turf replaced by the pressure of the foot.

Mattock planting is confined to rocky ground, and to soils containing many coarse, rough roots of herbage, heath, &c. Here the mattock is indispensable. The handle is three feet six inches long; the mouth or cutting edge is five inches broad and sharp; the length of it, to the eye or shaft, 16 inches; the small end or pick is 19 inches long, (*c*, fig. 42.) The broad end is to be faced with steel. It is effectual in paring furze, heath, ferns, &c. and the pick is equally so for thoroughly loosening the soil to be operated upon with the spade or *planter*, (*d*.) The *Hackle* prongs are recommended for clayey, tenacious soils. It is made with two or three prongs; the former of two, for the soil just mentioned, and the latter of three prongs, for stony or gravelly soils.

Holing.—Holes or pits are dug out, and the loosened soil left for a season to the action of the weather, to ameliorate and reduce its texture. These must be, for plants of one and a half to two feet high, two feet broad and 18 inches deep, and filled to a suitable heighth with pulverized mould. The holes should be 6 to 12 inches broader and deeper than is sufficient to admit the roots of the plant, that the latter may shoot freely, and in tenacious soils, that they may be freed from stagnant water. The holes being prepared, the process of spade planting is readily performed, care being taken not to insert the plant more than half an inch deeper than it stood in the nursery, to spread the roots in their natural position, to fill with fine mould, and to tread the earth about the plants.

☞ In all cases of planting, it is a good practice to dip the roots in a puddle made with water and rich mould, which coats them and prevents their becoming dry; and they should be kept covered with earth, and a few plants taken out at a time, as they are wanted.

Furrow planting is performed by opening a furrow with a trenching plough, or two common ploughs, following in the same furrow, and opening the soil to the depth required for the roots of the trees. The plants are set in the furrows at the proper distance, and the earth filled in with the spade.

Distance.—In profitable forest tree planting, seedlings of three years' growth, or plants which have remained two years in the seed bed and one year in transplanted nursery rows, should be planted on their timber sites, three feet apart every way, the soil being thin, light or sandy. On stronger land, well prepared, the distance may be four feet. Trees of the age alluded to, will vary from nine to twenty inches in heighth, say the English writers, but with us they will generally much exceed this, particularly the elm, soft maple, plane, and many other species. It is always desirable, that seedling beds should be sheltered by trees, buildings or tight fences, from the inclement winds of winter.

Works that may be referred to.—Useful and Ornamental Planting, Loudon's Encyclopædia of Agriculture, Planter's Kalendar, Pontey's Profitable Planter, &c.

TO CORRESPONDENTS.

Marl.—J. M. M. who dates at Valley, Pa. is advised, that he will find his inquiries answered in the extract upon marl, which we commence to-day, from the Farmers' Series of the Library of Useful Knowledge. Marl is found combined with sand and with clay, and sometimes in an almost pure carbonate of lime; and it is of various colors, though it is generally of a light brown, specifically light, and abounds more or less in fragments of shells. The presence of carbonate of lime may be detected with good vinegar—as this causes an effervescence when it comes in contact with the dry carbonate. The request in regard to the manufacture of cheese, shall receive early attention.

We ask pardon of the respectable writer of "*Ohio*," for the inadvertent omission of his communication in our last number.

Ground Moles.—A. Foote, of Williamstown, complains of great injury done to his fruit trees, in winter, by the moles or mice, and asks to be informed of some mode which will preserve them from like depredations the coming winter. There are two modes of preserving fruit trees from the depredations of moles, near the surface of the ground, in ordinary winters, though neither of these would have been sufficient to protect all in such a winter as the last; for in many instances, where the snow was compact and impervious to them near the ground, they passed *over* it, and barked the plants two, four, and even six feet above the ground. One mode of prevention consists in treading the early snow firmly about the collar of the tree. There is generally grass or weeds about trees, which keeps the snow loose, and permits the passage of the mole under it. We have been in the practice, several years, of having the sod about our fruit trees, in grass grounds, turned over in September or October, and trodden down, and this has saved them from the mole. Another mode, recommended in the proceedings of the Society of Arts, is, to take seven parts of grease and one part of tar, blend and mix them well together, and with this composition brush the trunks of the trees, from the ground upwards as far as may be required. The tar is offensive to all animals, while the grease mollifies it so as to prevent its becoming injurious to the trees.

Our correspondent at Augusta, Georgia, W. J. Hobby, asks to be informed of a remedy against the worms, which destroy the culinary productions, particularly those which prey upon the cabbage. "I have known," says he, "a decoction of tobacco, of snuff, and of salt, of ashes and lime, sprinkled over them, and the worms appeared to thrive upon them all. I do not know that snuff even made them sneeze." Will some correspondent suggest a remedy for the evil? We know of none.

The Silk Business.—We have received a communication from a respected female correspondent, Mrs. P. B. Westcott, which contains some useful hints to silk growers—that they sow the seed, and plant the trees before they erect costly silk factories; that they should take care that their worms do not hatch before there is food for them; that the black mulberry affords leaves some days earlier than the common white or multicaulis, &c. The reader is desired to correct an error in the former communication, in line 18, p. 184, vol. 2, by adding *not* between "would" and "have."

☞ Those of our subscribers who find it inconvenient to remit for the 3d volume, are respectfully informed, that the 4th volume will be continued at the present price; and that, as the year will soon expire, remittances for the 4th volume, by those who intend to continue to patronize our labors, may profitably be sent with subscriptions for the 3d, and where desired, for the 2d volume also.

CORRESPONDENCE.

CHEAP STRUCTURE FOR GRAIN AND HAY.

Huntington, August 15, 1836.

Jesse Buel, Esq.—Sir,—The remarks upon "stacking grain," contained in your August number of the Cultivator, induce me to recommend a kind of barrack, which I have used for several years, and which I think pays for itself in a short time. We will suppose that you wish to erect one which shall contain one hundred loads of grain or hay. Take twenty posts of twenty feet in length, and about eight inches diameter, and set them in two rows; let the rows be *sixteen* feet apart, and the distance between the posts the other way, twelve feet; the posts must be put four feet in the ground; frame plates on these posts from end to end of the rows, and bind them together crosswise by girts, let in about two feet from the top; strengthen this cross-work by braces eight feet long; you will understand, of course, that the braces go from the girt to the posts. Set on the plates, rafters of such length as will allow an Albany board, (when laid on for covering,) to project one and a half feet below the plate; make use of one and a quarter inch stuff for lath, laying one row at the ridge, another about midway of the rafter, and a third just clear of the plate. In putting on the roof-boards, every other one rides, and ought to lap upon the edges of its supporters one and a half inches. The ends of the building are to be boarded from the peak till within six or eight feet of the ground, (this makes a string-piece or two necessary, which may be of plank,) and accommodated with a large window, having a sliding shutter. On the sides of the building, you board down from the plate with three Albany boards, remembering to have a strip of plank about six inches wide, to tie them together in the middle. It will be well also, to cut pieces of board along the ridge under the board that rides,—this to prevent rain or snow from driving in. Your barrack is now completed.

In mowing away, you drive under, and fill one joint, or the compartment included by four posts, at once; when you get to the last end, that must be filled from the outside, through the window.

These buildings are cheap; they preserve grain and hay in a perfect state; they obviate the necessity (often a very galling one) of employing an artist to stack; grain never grows in them; this may appear like repetition; but I must be excused for contrasting them with stacks, in this important particular, they will shelter several loads at a time, when you are threatened with showers; or, you drive under several loads at night, and let your hands store them away before breakfast; being a part of the day often wasted, even in the busiest season of the year. In winter, when the exterior sheaves of stacks are penetrated to the bands with snow and sleet, so as to prevent thrashing for days, the grain in these buildings may always be got in, in order, excepting perhaps a very little on the windward side, which should be kept by itself till dry; poultry make no impression on grain in these buildings.

The last one which I built, (being No. 3,) was calculated for forty loads, and this cost me (exclusive of timber which was cut on the farm) $65.20. Persons who have not locust for posts, would do well to char the surface which is to go under ground.

Permit me now to ask a question. Are you familiar with the use of the horse-rake, the revolving rake; and did you intend to apply your remarks about curing hay *in cock*, to a country where this rake can be used?*

With high respect, your obed't ser't,

A SUBSCRIBER.

P. S. In mowing grain under these barracks, it is best to keep the middle of the mow highest, and to give the outer course of sheaves a good pitch. Moreover, a floor of poles, or rails, laid upon stones so that cats can go under, answers a good purpose.

---

* We *are* familiar with the revolving horse-rake, and commend it greatly on old or thin meadows. Clover belongs to alternate husbandry, where the grass ought to be too heavy for its use; and it is not used in our mode of making clover hay, *till after the crop has been carted from the field.—Cond.*

EXPERIMENTS WITH PLAISTER OF PARIS.

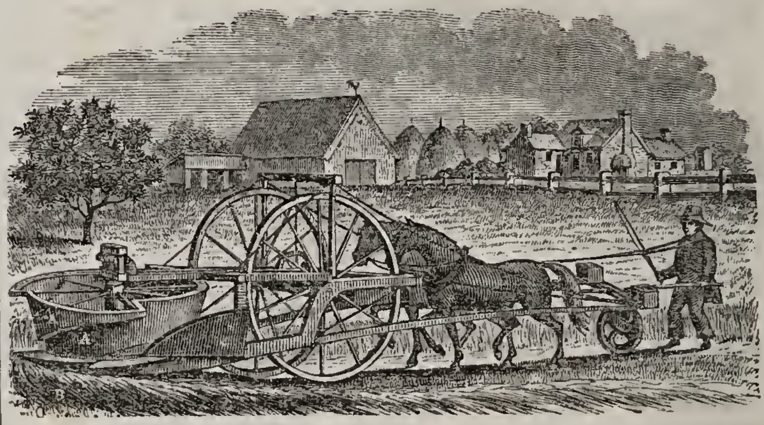
Jesse Buel, esq.—Dear Sir—I now, in conformity with my promise, send you the result of the various experiments which I have made with Plaister of Paris. Early in the spring I ordered 50 barrels from Oswego, but owing to some unknown cause, they did not reach me till the middle of May. I immediately had six barrels sown on 22 acres of clover and timothy, in a field which had not been half seeded by my predecessor; the seed was sown in the preceding spring on winter wheat—in less than a fortnight the effect was evident, and I cut over two tons an acre where I am certain I should not, without the plaister, have cut 15 cwt. The field being large and rather undulating, the sower missed his line in several spots, and on these there was scarcely grass enough to stand the scythe. The field had been cleared more than 20 years, and hardly cropped without ever having been manured—previous wheat crop not over 18 bushels per acre after summer fallow—soil a deep loam, rather light than heavy. Having a field of fifteen acres of peas sown after a poor crop of wheat, which had been much winter killed; on the 20th of May, when the plants were just appearing, I ordered one barrel of plaister to be sown on about four acres thereof, merely to try the effect, which was so great that in less than a month it appeared to have increased the crop at least three-fold.—Vexed at having plaistered so small a part, when I beheld the result, without expecting to remedy my error in any considerable degree, as the peas were all now more than a foot high, and those which had been plaistered much higher, I ordered my head man, an excellent seedsman, to sow another barrel at the rate of half a bushel per acre; in less than three weeks these last manured were fully equal to the others, while the five acres unplaistered were so inferior that they might be distinguished two miles off, though these were more than an average crop. The plaistered peas were so luxuriant that I feared they would neither ripen nor pod well, but they are now nearly all cut, and I find my fears were groundless. An experienced farmer, who for more than 30 years successfully tilled a very extensive farm in the East Lothians of Scotland, walked over the field with me the day before yesterday, and he declared that he never had seen a finer or more productive crop in any country; indeed the ground could scarcely contain more plants, or the plants more pods; the tops, however, of the plaistered peas continued to grow and blossom till they were cut, and will make excellent fodder, but the peas were quite ripe nearer the bottom. In a field which had been lightly seeded with timothy in 1834, and which last year was scarcely worth mowing, I sowed on three acres of the shallowest and worst part, a barrel of plaister; these produced twice as much hay as all the rest of the field (7 acres,) and the mowers said I lost eight tons of hay by not plaistering the whole. I also sowed half a bushel on an acre of a field which had been left unseeded, and produced nothing but natural red top, bent and blue grass; a thick and luxuriant coat of white clover in a short time marked the spot, which was eaten bare by my cattle, and had a very singular appearance in the midst of the coarse grasses which they left untouched. I also found plaister beneficial, though in a less degree, to spring wheat. The soil of the three last mentioned fields is a deep sandy loam, containing a good many lime stones. In my garden my experiments were attended with very different results; it contains exactly one acre of deep rich vegetable mould, and was never submitted to spade or plough till last September, when it was well manured with long dung, and trench ploughed; last spring it was well dragged and cross ploughed, and afterwards well worked with the cultivator, and the part intended for small seeds dug with the spade; a part having been planted with asparagus, rhubarb and seakale early in last November. I tried plaister here on peas, rhubarb, seakale, onions, carrots, parsnips, turnips, French beans, cellery, melons and potatoes, and on none of these, except the beans, which were evidently, and the potatoes, which were greatly benefitted, did it produce any beneficial effects—on the melons it positively operated as a poison, destroying every plant submitted to its influence. Hence it seems that on over rich or highly manured lands, plaister is of little or no benefit, but that its good effects on dry, light soils are most extraordinary, I am thoroughly convinced. I must add that I last week saw a field of oats, the soil of which was a pure running sand, that could not, without such assistance as it received, have produced a return of the seed—sown after peas, and yet on six acres thereof, *where the peas had been plaistered*, the crop is certainly not less than sixty bushels to the acre, while on the rest of the field it is not worth cutting.

I hope sir, many of your readers will be induced by what I have said, (and I am sure, though I write anonymously, for reasons before stated, that you who know me will vouch for my credibility,) to use this cheap but most valuable manure, and their success, o which I am confident, will highly gratify a sincere well wisher to the agricultural enterprize of your countrymen, and a warm admirer o your own praiseworthy exertions in so good a cause.

Upper Canada, September 5th, 1836. COLONUS.

WILSON'S MOWING AND GRAIN CUTTING MACHINE.

Fig. 43.



Among the thousands of labor saving inventions, which form one of the most prominent features of the present age, it is natural to expect that many splendid and plausible plans may prove abortive, and deceive the inventors, and often the public; and therefore, few men, if any, are capable of deciding with certainty on the merits of an invention, until experience shall sanction the decision.

A machine has been recently exhibited in this city and its vicinity, by the inventor, Capt. Alexander M. Wilson, of Rhinebeck, for mowing grass and cutting grain. I will predicate my remarks on what I saw, and leave time and experience to decide on its merits.

The machine consists of a carriage on two wheels, propelled by one or two horses, oxen or other beasts of burden, travelling in the rear and pushing it forward. In the front, at the bottom, is a horizontal wheel upon an upright shaft, which shaft and wheel receive a rotary motion, communicated by gear from the main axle, which revolves with its wheels, as the machine goes forward. The diameter of this horizontal wheel, with the addition of the knives projecting from its edge, measures the width of the swathe, which is cut with the knives as the wheel goes forward, revolving rapidly and lying close to the ground. The apparatus which sustains the cutting wheel is so constructed as to accommodate its height to any inequalities in the ground, and to give it any inclination required. The knives are sharpened by their own operation, without stopping the machine. There is also attached to the upper side of the cutting wheel a rim which gathers the grass as it is cut, and lays it in a swath more regularly that it can be laid by the sythe.

I saw it in operation, propelled by two horses, and cutting a swath about six feet wide, as fast as the horses could walk; and though the ground was very uneven, and the grass somewhat dry and in bad order, it performed the work as well as it could be done by hand.

I know not what objections experience may raise against it, but I would venture to say, if this most tedious and yet most important labor of the husbandman, is ever to be successfully performed by machinery, I think this machine more likely to effect it than any other plan I have seen. It would be absurd to expect this or any other mowing machine, to operate on new and rough land, among stones and stumps—but our country affords numerous large tracts of meadow with fine smooth bottom, and the proportion is rapidly increasing; and in the great western prairies, such a machine, cannot fail to be one of the most useful improvements of the age. I would therefore advise every agriculturist, who has smooth meadows, or which can be made smooth, particularly those at the far west, to see this machine, and endeavor to promote its introduction, so far at least as to give it a fair trial.

S. BLYDENBURGH.

Reference made to the patentee. Rhinebeck, Dutchess co., or to George Hanford, No. 409 South Market-street, Albany.

THE CUT WORM AND HESSIAN FLY.

The history and habits of these devouring insects, hitherto a mere matter of conjecture, continue an object of intense solicitude to inquiring farmers; and more especially, the present season, inasmuch as their hopes and prospects of the corn and wheat crops, have been with little exception, alike prostrated. American entomology is in its germ; Mr. Melsheimer, a Lutheran clergyman of this state, may be regarded as the progenitor of the science in this country; he published a catalogue containing thirteen hundred and sixty native species of insects of one order, or group, in 1806; without descriptions or a history of their habits. Professor Say, has also been engaged for many years in an unfinished work, describing scientifically, the unnoticed insects of this country. Fortunately for the farmers, his occupation, in its present extended march of improvement, embraces personages characterized by that noble and disinterested zeal, which brings to the task an ardor far superior to the sordid ambition of merely amassing wealth, too often at the expense of a broken constitution and green old age.

The cut worms, are evidently the numerous progeny of some familiar insect. The question arises, to what species can they be attributed? Some are led to conjecture, that they are propagated by the order *Coleoptera*, or beetle: although I have examined with some care, the several species of the beetle tribe common in this country, among which the pellet beetle is most numerous, yet I have invariably found their larvæ of pale yellowish, or light brown color; whereas the cut worm is nearly black, and very different in its habits. The conjecture, that the cut worms are the larvæ of the beetle, or any other perpetual insect, should be humbled by the single circumstance, that the cut worm is periodical in its devastating visitations, and consequently can be the progeny *only* of a periodical insect. I know none of that character bearing a semblance of suspicion, excepting the *cicada septembecem*, of the order *hemiptera*, genus *cecada*, and species *grilli* or *grillus* of Linn. (here very improperly mistermed locust, for those visiting Europe and Africa, whose history present a series of calamities, inspiring all people with superstitious horror.) The American cicada is remarkable for its regular and simultaneous reappearance every seventeen years, in countless milllions. They appeared here in 1817 and 1834, several years succeeding each of those dates, have been marked, by the destruction of the cut worm. And as some of the cicada appear every year, we also find *some*, however *few*, of the cut worm every year. It is ascertained, that the cicada deposite each from 600 to 1,000 eggs, forming of course a numerous progeny.

This conjecture of mine, relative to the cut worm, although strengthened by observation and experience, yet should any of your observing and enlightened correspondents offer an idea more plausible, the above shall be freely yielded notwithstanding.

Many practical farmers have prescribed remedies to counteract the ravages of the cut worm, stating the consummate success of their *modus operandi*; but it is matter of regret to know, that an effectual remedy is still wanting, to expel or dislodge them when once in possession of the corn hill. There are, however, preventives, well worthy the farmer's attention. The most effectual prevention consists in ploughing sward ground intended for corn in autumn, previous to planting; but if this be not convenient, a stubble field should be chosen, if ploughed in the spring; the rationale or philosophy of the mode is simply this, the sod being turned up to the frost of winter, it becomes so meliorated and consolidated by spring, (if well ploughed) that there will be no green thing scarcely of vegetable kind left for the larvae of the insect to subsist upon, and consequently they either desert the field or perish. The same parity of reasoning holds good for stubble ground, it being also destitute of food, and thus affording the grub no harbor. Another method, by means of which I have entirely succeeded the present season, notwithstanding the adjacent field of a neighbor was wholly destroyed, it may not be amiss to notice. The field was an old sod of timothy and clover. Apprehending the danger of the cut worm, I delayed ploughing until after the first of May, to give the grass a start, which grew strong, and was ploughed under, designing it as food for the cut worms; my expectations were realized, the corn was scarcely touched by the worms, and the green grass, consisting almost wholly of *soluble matter*, from present appearances, will be no detriment to the corn crop, but *vice versa*.

The Hessian Fly, *cecydomia destructor of the order diptera*, was perhaps never more destructive in the middle states than the present season. There is a discrepancy in the opinions of writers on the history and habits of this insect, which amounts to vaguery. One moot point, however, appears settled concerning it, i. e. it is entirely mistermed; instead of it being an exotic, it was never known in Europe, while its ravages were felt in America long before the revolution. The *tipula tritici* of Europe, is in modern nomenclature, termed *cecydomia tritici*, but known to be very different from our *c. destructor* in many respects.

When the fly first made its appearance in Long Island, in 1776, its ravages threatened the total abolition of the culture of wheat. An alarm was excited in England, that the fly would be imported in cargoes of wheat from this country. After the subject had occupied the privy council and Royal Society for some time, during which, despatches were forwarded to his majesty's ministers abroad, and expresses were sent to all the custom houses, to search the cargoes, a mass of information was collected and published, which, instead of affording any *correct* information, served only to prohibit the importation of American grain.

It is to be doubted whether the fly ever *was*, or ever *will* be, the primary cause of failure of the wheat crop. The season was the *primary*, and the fly merely the *secondary*, cause of failure the present year. There are sufficient quantities of seed-wheat infected every year by the fly, to produce a great devastation, if aided by the season. There were still fields in this region the present season of failure, which by good soil and culture, grew on undiminished by the warm drought of May. I harvested one field of twelve acres, low land, which, from facts already ascertained, will average upwards of thirty bushels an acre; when in an adjacent field of high southern aspect, (which bore on *much* of its surface less than half the quantity of snow which lay on the former, all winter and much later in the spring than the latter, which I note as an evidence that the wheat plant is never injured by snow, while the rye suffers much, it is remarkable to see writers not name the drought of May as the main or chief cause of the failure,) though sown of the same seed precisely, yet there were not ten bushels to the acre, being infested with the fly, while the field above was entirely free. The field which failed looked very fine in the spring after the snow disappeared, but was exceedingly injured by the drought in May, and never recovered, giving the larvæ of the fly advantage of the sun and air to complete its transformations, and prepare it for destruction. Discoveries deduced from microscopic observations, as well as other reasons, combine to establish the fact, that the fly deposites its eggs within the glumes of the florets of the wheat, in June; and if the wheat be sown too early, the larvæ may injure the wheat plant in the fall; and again, if sowed very late, the growth will be feeble in the spring, and extremely favorable to the transformation of the fly. In May the young insects are easily discerned by the naked eye, (having grown from the nits deposited in the grooves of the wheat grain,) lodged in the bulb of the plant, between the radicles and culm, or plumula, in the pupæ state, and soon after form chrysalis, after which, they being now in the perfect state, the young fly by means of its ovipositor, escapes through the bulb of the plant, nearly even with the surface of the ground, when the stalk, from the injury thus sustained, falls to the earth, or hangs pendantly over the adjacent grain. The wheat grain, at that season, is generally in the milky state, and the whole injured, by preventing the maturing process, is of course valueless. When the flies are very numerous, their devastation may be compared to that of a hail storm. If the habits of this insect be closely pursued, it will be found that they are closely confined to the fulfilment of the object of their destiny. After it escapes from its terrene abode, it exercises its sexual privileges, seeks the propagation of its species, and then, like all insects, in all probability, dies. To recapitulate, if the eggs of the fly be not deposited on the grain of wheat, so as to be sown with the wheat, how can the pupa be formed in the bulb of the root, completely encased by the plant in its growth, forming as it were, a close cocoon about them? This fact must be obvious to every one who has examined the plant at the proper season; this single circumstance admitted, makes null the conjecture, that the fly is harbored about stack yards, in the stubble field, &c. I never knew a heavy crop, or a field promising a heavy crop in the spring, and free from other causes, to be injured by the fly; hence, if wheat fields continue luxuriant up to the season in which the fly commits its depredation, they are never injured; but if the wheat, prior to that season, be retarded in its growth, or shows the premonitory indications of a light crop, then the fly may invariable be expected to appear.

I have a remedy to suggest for the grievance; our efforts must be renewed to improve our lands; confine wheat growing to wheat land, instead of straining soils never adapted to wheat, to produce it, and too often unaided by the only restoratives. Whereas, if land, intended for wheat, be properly cultivated, and sown in the most approved season, after being well prepared by rich fossil and putrescent manures, there will be no other safeguard required against the ravages of the fly. WM. PENN KINZER.

Spring Lawn Farm, Pequea, Lan. Co., Pa., Aug. 20th, 1836.

PROPAGATING THE PEACH.

J. Buel, esq.—Every number of the Cultivator increases in interest, and bids fair to become one of the best agricultural papers in the country. I have only been a subscriber about six months, and the numbers which I have received in that time I consider worth more than the price of the whole published numbers.

The article in the 6th number, on grafting and budding apple trees, by Solomon Phillips, jr. is a valuable and interesting communication to the people of this section of the country, especially the part relative to budding, as it has not yet become in use here, or I believe its practicability known.

In return for Mr. P.'s kindness, I will attempt to gratify his request about the culture of peach trees.

1st. We gather the stones in the fall, which we bury about an inch under ground, (high and early ground is preferred, as the pits will sprout earlier in the spring,) spreading them singly, but as closely as you can, in order that the frost may have its full effect upon them. The best time for putting them in the ground is the last of October, but any time in October or November will do.

2d. Preparing the ground for the young trees. Select a rich and middling dry piece of ground, which if very rich, will do without manuring, but if not, manuring is indispensable. Short and old manure is the best, and if some rich dirt be mixed therewith, I think, all the better. The manure should be spread along the furrows, which should be made with a plough four feet apart. If any other manure be added after, I would recommend lime or ashes. The ground should be ploughed and harrowed well in the first place.

3d. Transplanting. This should be done as soon as the pits begin to sprout in the spring, by dropping them in the rows already prepared for them, about 8 or 9 inches apart, and covered about an inch or more deep. Some nurserymen let the young sprouts grow 6 or 8 inches high before they transplant them, but the former way I think the best. The young trees should be ploughed and hoed as often as necessary, in order to keep them free from weeds and grass, say 3 or 4 times each, the last just before budding, and not afterwards that season.

4th. Budding. Select from the healthiest trees the scions of the kinds you wish to propagate, cut of the leaves and keep them in water, at least the butt ends, (those buds which have three leaves on are the best.) They may be kept in this manner 3 or 4 days. Then take the scion in your left hand, holding the butt end downwards, enter your knife about half an inch below the bud, and cut upwards about a quarter of an inch above the bud, taking the wood with it, and then cut across the twig deep enough for the bud to come off; then with the point of your knife take out the wood from the bud; then make a transverse cut in the stock to be budded, about 3 or 4 inches above the ground, (first trimming off the leaves and limbs about six inches above the ground;) from the middle of this cut make a slit about half an inch downwards, then with the point of your knife open the bark on each side of the slit, by the transverse cut; enter the lower end of the bud therein, bearing it down with your thumb and finger, till the top side of the bud comes just below the first transverse cut, then with bark or yarn wind above and below the bud, in order to keep it close to the wood. In 12 or 14 days the bandages may be removed. The time of budding may be from the 20th of August to the 20th September, perhaps later sometimes. In the following spring, when the buds grow 3 or 4 inches long, the old stock should be cut off about an inch above the bud. In the following fall or spring you may set out your orchard, putting the trees about 20 feet apart. The ground should be rich and dry, not springy. Manuring is indispensable, unless the ground be very rich. Corn or potatoes may be planted among the trees, with benefit to them for 3 or 4 years.

Sir, if the above remarks contain any information worth publishing, you are liberty to do so. FRANK.

Middletown, Monmouth co. N. J. Sept. 5, 1836.

Chillicothe, July 18, 1836.

Mr. Jesse Buel—Dear Sir—In the June number of the Cultivator, we find a catalogue of the sale of Col. J. H. Powell's herd of improved short-horn cattle, to which are appended the remarks of a "correspondent," which we think, in justice to the importation of the Ohio Company, requires some notice.

The writer of this article has the pleasure of a partial acquaintance with Col. Powell, as well as some knowledge of his herd of short-horns, having seen them several times within two or three years past; and thinks he can safely say, that there is no person, not even excepting your correspondent himself, that more highly appreciates Col. Powell's praiseworthy exertions, or that would set a higher value on his herd of short-horns, than he does; but he must be permitted to think, (until better informed,) that your correspondent has, in his remarks, travelled somewhat out of his way, in making an effort to raise the reputation of Col. Powell's herd, at the expense of those imported by the Ohio Company, when he says—"Those imported by the Ohio Company, and passed through this city last summer, would not compare with these in symmetry of form or blood-like appearance, although they were obtained at high prices." As your "correspondent" does not say what city he has reference to, when he says "this city," he may have fallen into an error in his comparison; if he means Philadelphia, where the sale of Col. Powell's stock took place, the Ohio Company had no cattle to pass through that city last summer; if he means Albany, where the Cultivator is published, the Company had not more than three that passed through that city last summer, and they were then mixed with some ten or twelve others, some of which were, and some were not imported, and some of them of inferior quality. But if your correspondent means to say that the Company's *three* cattle which passed through Albany last summer will not compare with the cattle sold at Col. Powell's sale, "in symmetry of form or blood-like appearance," including every other essential good quality, pedigree, hair, handling, &c. then we differ with him in opinion, and in order to test our judgments, would be willing to meet him at the most convenient half-way place, be it east, west, north or south, and let good and impartial judges decide between us, for any premium he may think proper to name; *provided*, it be amply sufficient to defray all expenses in attending such meeting, paying judges, &c. &c. We will not only meet him on equal terms, but will give him the advantage; he may name twelve of the worst of the twenty in the catalogue; the three next worst would of course be better than an average of the whole; against these three, we will exhibit three of the cattle that passed through Albany last summer, and if the premium be awarded to us, he may bring forward the next three travelling upwards, for the same amount; and in like manner the next three. There will then be the best one of the twenty-two left; against this one, if your "correspondent" wishes, we will select one imported by the Ohio Company or stockholders, and exhibit for the same premium.

Your correspondent might possibly have had reference to the Ohio Company's importation, that passed through Philadelphia the summer before last; if so, he will be met if he wishes, on any fair terms, with a part or the whole of that stock.

The Ohio Company never has, and we believe never intended making any effort to raise the reputation of their importation at the expense of any other, but wish to let every importation, as well as their own, stand on its own merits; but at the same time they are not willing to stand mute, and let others pursue a different course at their expense, without a fair trial.

If your "correspondent" has fallen into any error as above suggested, he will be good enough to say so; if not, any communication he may think proper to make through the Cultivator, or any other channel, will be attended, by his friend and

Obedient servant, OHIO.

MEADOW vs. TILLAGE.

J. Buel—Dear Sir—In the August number of the Cultivator, a writer has placed the grass crop produced by top dressing, in competition with the alternation of crops, with a view, if I understand him, of assuming a more profitable course of agriculture.

To persuade men to change their mode of agriculture, correct and fair statements should be made, and these from actual experience and facts. I do not think it expedient to discourage the cultivation of the grass crops. An increase is desirable, for without them, there is an end to agricultural improvement. They are, in fact, the *main* support, whether considered for grazing or fodder.

The writer referred to has not made a fair statement. I consider it unfair, because he has taken only one year of the grass crop, and allowed nothing for an increase of the crop, after applying the top dressing. The quantity of hay is too small, and the labor charged 100 per cent too high, and the labor for tilling the corn and oats as much too little.

I will venture a few remarks from my own knowledge, and let the result speak for itself.

An acre of good grass land, suitable for top dressing, and worth $100 the acre, will produce 4 tons of hay annually, for at least 100 years. I will take a four year's crop, (the term taken for the alternate crop of corn, oats and grass.)

One acre, 4 years, crop 4 tons annually, 16 tons, at $15,		$240 00
Expenses—16 cords manure,..................	$32 00	
Carting and spreading same,........	4 00	
Interest on land, 7 per cent, ...	28 00	
Cutting and curing hay,............	32 00	
		96 00
Leaving,............		$144 00

Which gives an annual profit of $36 per acre annually, nearly three times the profit on C.'s alternate system. The price of labor I have charged at $1 a day, for securing the hay and putting on manure, and allowed one per cent more interest on the price assumed for the land.

This price for labor would not till the corn and oats. I also make the price of hay $7 a ton less than C. and three dollars a ton less than he charges in the alternate crops. The "fall feed" I estimate at nothing, as no feeding should be *suffered*.

The quantity of manure I know is sufficient to produce the annual crop named, eight cords to be spread every second year. There may exist a great error in top dressing grass lands, and this error should be corrected, (which I shall not at present attempt to do.) I think, however, it ought not to be discouraged. There may be a want of judgment or experience in the cultivator in selecting lands suitable to this mode of culture. I do not know of a more profitable crop that can be pursued permanently, than grass, allowing the price of hay to be $15 the ton. Indeed at $12 the ton, I believe it one of the best crops in New-England, that can be pursued for a long succession of years. I would not be understood, that I wish to discourage the system of alternation of crops. I consider it of the first importance; but this must be done on lands wholly unfit to be kept in grass by top dressing, any length of time.

I have no doubt there are many, very many, practical farmers, who have long experience and much skill in top dressing grass lands, who could if they wou'd, give some very valuable and correct information on the subject.

In fact, in some parts of New-England, I know it is the principle crop of the farm, and considered altogether the most valuable, and no land under any system of cultivation that I have known, will or can produce so valuable a crop of hay as good natural mowing, kept under a top dressing of manure and loam.

Brookline, Ct. August 24, 1836. VINDEX.

EXTRACTS.

CLINE ON THE FORMATION OF ANIMALS.

The form of domestic animals has been greatly improved, by selecting with much care the best formed for breeding; but the theory of improvement has not been so well understood, that rules could be laid down for directing the practice. There is one point particularly, respecting which, the opinions of breeders have much varied, which is, whether crossing the breed be essential to improvement.

It is the intention of this communication to ascertain in what instances crossing is proper, and in what prejudicial; and the principles on which the propriety of it depends.

It has generally been supposed that the breed of animals is improved by the largest males. This opinion has done considerable mischief, and would have done more injury if it had not been counteracted by the desire of selecting animals of the best form and proportion, which are rarely to be met with in those of the largest size.

Experience has proved, that crossing has only succeeded in an eminent degree, in those instances in which the females were larger than in the usual proportion of females to males; and that it has usually failed, when the males were disproportionably large.

The internal form of domestic animals has been much studied, and the proportions are well ascertained. But the external form is an indication only of internal structure. The principles of improving it, must, therefore, be founded on a knowledge of the structure and use of internal parts.

The lungs are of the first importance. It is on their size and soundness, that the health and strength of an animal principally depends: their power of converting food into nourishment, is in proportion to their size. An animal with large lungs, is capable of converting a given quantity of food into more nourishment than one with smaller lungs; and, therefore, has a greater aptitude to fatten.

THE CHEST.

The external indications of the size of the lungs, are the size and form of the chest, the form of which should approach to the figure of a cone, leaving its apex situated between the shoulders, and its base towards the loins.

The capacity of the chest depends on its form more than on the extent of its circumference, for where the girth is equal in two animals, one may have much larger lungs than the other. A circle contains more than an ellipsis of equal circumference, and in proportion as the ellipsis deviates from the circle, it contains less. A deep chest, therefore, is not capacious, unless it is proportionately broad.

THE PELVIS.

The pelvis is the cavity formed by the junction of the haunch-bones with the bone of the rump. It is essential that this cavity should be large in the female, that she may be enabled to bring forth her young with less difficulty.

When the cavity is small, the life of the mother and of her offspring is endangered.

The size of the pelvis is chiefly indicated by the width of the hips, and the breadth of the twist, which is the space between the thighs.

The breadth of the loins is always in proportion to that of the chest and pelvis.

THE HEAD.

The head should be small, by which the birth is much facilitated; the smallness affords other advantages, and generally indicates that the animal is of a good breed.

Horns are useless to domestic animals, and they are often causes of accidents. It is not difficult to breed animals without horns.

The breeders of horned cattle and horned sheep, sustain a loss more extensive than they may conceive; for it is not the horns alone, but also much more bone in the skulls of such animals, to support their horns, for which the butcher pays nothing; and besides this, there is an additional quantity of ligament and muscle in the neck, which is of small value.

The skull of a ram with its horns weighed five times more than another skull which was hornless. Both these skulls were taken from sheep of the same age, each being four years old. The great difference in weight depended chiefly on the horns, for the lower jaws were nearly equal; one weighing seven ounces, and the other six ounces and three-quarters, which proves that the natural size of the head was nearly the same in both, indepedently of the horns, and the thickness of bone which supports them.

In a horned animal, the skull is extremely thick. In a hornless animal, it is much thinner, especially in that part where the horns usually grow.

To those who have not reflected on the subject, it may appear of little importance whether sheep and cattle have horns or no; but on a very moderate calculation, it will be found that the loss in farming stock, and also in the diminution of animal food, is very considerable, from the production of horns and their appendages. A mode of breeding which would prevent the production of these, would afford a considerable profit in an increase of meat and wool, and other valuable parts.

The length of the neck should be proportioned to the height of the animal, that it may collect its food with ease.

THE MUSCLES.

The muscles, and tendons which are their appendages, should be large, by which an animal is enabled to travel with greater facility.

THE BONES.

The strength of an animal does not depend on the size of the bones, but on that of the muscles. Many animals with large bones are weak, their muscles being small.

Animals that were imperfectly nourished during growth, have their bones disproportionately large. If such deficiency of nourishment originated from a constitutional defect, which is the most frequent cause, they remain weak during life. Large bones, therefore, generally indicate an imperfection in the organs of nutrition.

ON THE IMPROVEMENT OF FORM.

To obtain the most approved form, two modes of breeding have been practised; one by the selection of individuals of the same family, called breeding in-and-in: the other, by selecting males and females from different varieties of the same species, which is called crossing the breed.

When a particular variety approaches perfection in form, breeding in-and-in may be the better practice; especially for those who are not well acquainted with the principles on which improvement depends.

When the male is much larger than the female, the offspring is generally of an imperfect form. If the female be proportionably larger than the male, the offspring is of an improved form.

For instance, if a well-formed large ram be put to ewes proportionably small, the lambs will not be so well-shaped as their parents; and if a small ram be put to large ewes, the lambs will be of an improved form.

The proper method of improving the forms of animals, consists in selecting a well formed female, proportionably larger than the male.

The improvement depends on this principle, that the power of the female to supply her offspring with nourishment, is in proportion to her size, and the power of nourishing herself from the excellence of her constitution.

The size of the fœtus is generally in proportion to that of the male parent, and, therefore, when the female parent is disproportionably small, the quantity of nourishment is deficient, and the offspring has all the disproportions of a starveling.

But when the female, from her size and good constitution, is more than adequate to the nourishment of a fœtus of a smaller male than herself, the growth must be proportionably greater.

The larger female has also a greater quantity of milk, and her offspring is more abundantly supplied with nourishment after birth.

To produce the best formed animals, abundant nourishment is necessary, from the earliest period of its existence until its growth is entire.

It has been observed in the beginning of the paper, that the power to prepare the greatest quantity of nourishment from a given quantity of food, depends principally on the magnitude of the lungs to which the organs of digestion are subservient.

To obtain animals with large lungs, crossing is the most expeditious, because well formed females may be selected from a variety of a large size, to be put to a well formed male of a variety that is rather smaller.

By such a method of crossing, the lungs and heart become proportionably larger, in consequence of a peculiarity in the circulation of the fœtus, which causes a larger proportion of the blood under such circumstances, to be distributed to the lungs, than to the other parts of the body, and as the shape and size of the chest, depend on that of the lungs, hence arises the remarkably large chest which is produced by crossing with females that are larger than the males.

The *practice* according to this principle of improvement, however, ought to be limited; for it may be carried to such an extent, that the bulk of the body might be so disproportioned to the size of the limbs, as to prevent the animals from moving with sufficient facility.

In animals where activity is required, this practice should not be extended so far as in those which are intended for the food of man.

ON THE CHARACTER OF ANIMALS.

By character in animals is here meant, those external appearances by which the varieties of the same species are distinguished. The characters of both parents are observed in their offspring, but that of the male most frequently predominates. This may be illustrated in the breeding of horned animals, among which there are many varieties of sheep, and some of cattle, which are horned.

If a hornless ram be put to a horned ewe, almost all the lambs will be hornless, partaking of the character of the male, more than of the female parent.

In some counties, as Norfolk, Wilkshire and Dorsetshire, most of the sheep have horns. In Norfolk, the horns may be got rid of by crossing with Ryland rams, which would also improve the form of the chest and the quantity of the wool.

In Wilkshire and Dorsetshire, the same improvement might be made by crossing the sheep with Southdown rams.

An offspring without horns might be obtained from the Devon cattle, by crossing with the hornless bulls of the Galloway breed. This would also improve the form of the chest, which the Devons are often deficient in.

EXAMPLES OF THE GOOD EFFECTS OF CROSSING THE BREED.

The great improvement of the breed of horses in England, arose from crosses with the diminutive stallions, Barbs and Arabians; and the introduction of Flanders mares into this country, was the source of improvements in the breed of cart horses.

The form of swine has also been greatly improved by crossing with the small Chinese boar.

EXAMPLES OF THE BAD EFFECTS OF CROSSING THE BREED.

When it became the fashion in London, to drive large bay horses, the farmers in Yorkshire, put their mares to much larger stallions than usual, and thus did infinite mischief to their breed, by producing a race of small chested, long legged, large headed, worthless animals.

A similar project was adopted in Normandy, to enlarge the breed of horses there, by the use of stallions from Holstein; and in consequence, the best breed of horses in France would have been spoiled, had not the farmers discovered their mistake in time, by observing the offspring much inferior in form to that of the native stallions.

Some graziers in the Isle of Shepley, conceived that they could improve their sheep by large Lincolnshire rams, the produce of which was, however, much inferior in the shape of the carcase, and the quality of the wool, and their flocks were greatly injured by this attempt to improve them.

Attempts to improve the native animals of a country, and by any plan of crossing, should be made with the greatest caution; for by a mistaken practice, extensively pursued, irreparable mischief may be done.

In any country where a particular race of animals has continued for centuries, it may be presumed that their constitution is adapted to the food and climate.

The pliancy of the animal economy is such, as that an animal will gradually accommodate itself to very great vicissitudes in climate and alterations in food, and by degrees undergo great changes in constitution; but these changes can be effected only by degrees, and may often require a great number of successive generations for their accomplishment.

It may be proper to improve the form of a native race, but at the same time it may be a very injudicious attempt to enlarge the size.

The size of animals is commonly adapted to the soil which they inhabit. Where produce is nutritive and abundant, the animals are large, having grown proportionally to the quantity of food which for generations they have been accustomed to obtain. Where the produce is scanty, the animals are small, being proportioned to the quantity of food which they are able to procure—of these contrasts the sheep of Lincolnshire and of Wales, are examples. The sheep of Lincolnshire would starve on the mountains of Wales.

Crossing the breed of animals may be attended with bad effects in various ways, and that even when adopted in the beginning on a good principle; for instance, suppose some larger ewes than those of the native breed, were taken to the mountains of Wales, and put to the rams of that country—if these foreign ewes were fed in proportion to their size, their lambs would be of an improved form, and larger in size than the native animals; but the males produced by this cross, though of a good form, would be disproportionate in size to the native ewes, and, therefore, if permitted to mix with them, would be productive of a starveling, ill-formed progeny. Thus a cross which was at first an improvement, would, by giving occasion to a contrary cross, ultimately prejudice the breed.

The general mistake in crossing has arisen from an attempt to increase the size of a native race of animals, being a fruitless effort to counteract the laws of nature.

The Arabian horses are, in general, the most perfect in the world; which probably has arisen from great care in selection, and also from being unmixed with any variety of the same species; the males, therefore, have never been disproportioned to the size of the females.

The native horses of India are small, but well proportioned, and good of their kind. With the intention of increasing their size, the India company have adopted a plan of sending large stallions to India. If these stallions should be extensively used, a disproportioned race must be the result, and a valuable breed of horses may be irretrievably spoiled.

From theory, from practice, and from extensive observation, which is more to be depended on than either, it is reasonable to form this

CONCLUSION.

It is wrong to enlarge a native breed of animals; for in proportion as they increase in size, they become worse in form, less hardy, and more liable to disease.

From the Southern Agriculturist.

AGRICULTURAL EDUCATION.

Our prosperity has been derived entirely from our agriculture, imperfect as it has ever been; and without any visible improvement in our arts of management, labor, or experiment, we have presented, through the agency of a productive soil and atmosphere, the appearance of a people which has always continued to improve. All our interests, whether they affect our gain, our society, our politics, local or foreign, take their complexion from our agricultural pursuits, and are prompted by them. All professions in our country are moved by those of the planter. In his success, they succeed—in his losses, they suffer. In his fate, the fortunes of merchant and mechanic, lawyer and doctor, freeman and slave, have their governing principle, and his importance is to be estimated by their dependance upon him, not less than by his own individual character and influence in the community. His successes determining, in great measure, theirs, does it not follow that in proportion as he is weak or enlightened, they will falter or succeed. In proportion as he is intelligent and industrious, will be their hopes of fortune, and their capacity for enterprise. In proportion as he is skilful and reflective, will be their skill, their reflection, their readiness for adventure, their elevation of pursuit and character—their virtue and their patriotism. The intimate connexion and close dependance of all pursuits upon those of agriculture, are happily comprised by Lord Bacon in a simple and brief sentence, in which he sums up the whole history of national prosperity: "There are three things," says he, "which one nation selleth to another—the commodity as it is yielded by nature, the manufacture, and the *vecture* or carriage; so," says he, "if the three wheels go, wealth will flow in as a spring tide." He places the three things in their proper order. The planter first, the manufacturer next, the shipper third; and the sentence might very well be stuck over the door of every cotton and counting house in the country.* But there is yet a greater than planter, manufacturer and shipper, whom Bacon has not classified with the rest. He must be set before them all. He is *Labor*—a huge, heavy-handed giant, striking like a blind Cyclops, imperfectly and uselessly, until Art, a gift from Heaven, which should be protected, if not worshipped by man, comes to his aid, and directs his efforts, and makes him equally important to agriculture, to mechanics, and to commerce. Through him they all triumph, without him not one of them could succeed.

We have labor—has art duly prompted and directed his industry? This is the question. Surely, these are truths—undeniable truths—which we have been uttering. Have our people learned them—do they believe them—have they adopted, and do they toil in obedience to the precepts which they teach? How far has South Carolina recognized, and how closely has she practised upon them? Let us ask the question. Let us look into the truth.

It is humiliating to know that we have made no such inquiries—we have been too regardless of these truths. Not sufficiently content with the bounty of Providence to forbear complaint, we have yet been too well satisfied with what she has given us, to have labored at improvement. We have left undone a thousand things which should have been done, and we need not wonder, if there should come a time, when the wholesome truth comes home to us, and the stern rebuke of heaven places our present diminution of the goods of fortune to our own account; charging us with a neglect of our proper duties of self-instruction and self-devotion to our own and the general interest of the country. Look back at our agricultural history and enterprise, and how gross are its defects. What have we learnt?—What do we know?—Where are we now? Are we a solitary year in advance of the first settlers in the matter of Agricultural Education? We fear not. What are our improvements; and what is the estimate which we are accustomed even now to put upon agricultural knowledge? Is it not regarded as the merest matter of common place industry and effort, which calls for an overseer, not a guide—a spy rather than a teacher; which needs no art to prune, no precaution to provide against the viscissitudes of the season, no reflection to devise new improvements, or convert into proper channels, the well known and the old? Is not such the estimate commonly put upon agriculture—the very first of the arts—mingling the necessary with the useful, the useful with the grateful, the grateful with the elegant, the elegant with all others? There are very few persons who consider it a profession, requiring any intellectual exercise whatever, and, compared with its sister arts, we may venture to affirm, that, although the very highest in importance, it is yet the very lowest in point of rank. True, we honor the planter as one who is a good citizen—who has wealth and the influence which wealth produces—who is frank in his intercourse with men—who is hospitable to the stranger, and who gives to our society a character and temper, which we would not willingly see exchanged for any other. But there is little more.

His virtues and vices, his toils and his pleasures are, alike, set down, and the Agricultural Society may foot them up at pleasure. To him it matters not much what is the precise character of the soil which he cultivates—he asks not the history, he observes not the constitution of the plant from which comes all his revenue. It is not his concern upon what principle of mechanics his workmen, his horses, mules and oxen, apply their labor; nor does he deem it his part to know by what particular tenure he holds his lands—or upon what great principle, his rights, as a citizen, are maintained. He is too apt to avoid all trouble and concern on these topics. Public opinion expects from him no knowledge on any of them, and he may live in total ignorance of the whole history of his own country past and present, yet, in no wise offend the judgment of those who move around him. Let him but pay his taxes, he may vote—let him but speak civilly, he is a good citizen—let him but show a wholesome warmth on the subject of his public relations, he is quite as pure a patriot as any in the republic.

Nor, in public and national respects only, may he live in utter ignorance, and live without offending popular opinion. Contract the sphere of your observation, and see him at home. He may be totally uninformed of those matters which more immediately pertain to his own plantation and its government—sometimes, indeed, he may be even found to despise them, as unbecoming in him to notice, or unworthy of his esteem. And this course of conduct, though in such exceeding bad taste, would call for no rebuke from the general feeling, and would, indeed, rather accord with, than revolt, the public opinion. We are somehow strangely given to regard all labors which employ time, and compel exertion, as inconsistent with a proper gentility. Noble blood will not trade in merchandize—can it be expected that noble blood will sow and reap, and devise modes and means by which the arts of sowing and reaping shall be strengthened and improved? There must be a revolution in our thoughts, in our habits of thinking, before we can hope for improvement. Our planter, himself, must make a change—he must not wait for the spirit of enlightenment—he must go forth and seek it. Public opinion must keep pace, and go with him in such a pursuit, for, whatever may be the achievements of the individual, he will inevitably fall back into old lethargies, unless stimulated by the belief that the world around goes with him—that all are stirring in the same fields, and that if he does not push forward inflexibly, fearlessly, thoughtfully, he will be left behind in the grand march of enterprize, alone—stagnating and stiffening—where he stands.

The exertion must come from the planter, and the planter only. The movement of other craftsmen will never move him. He must move himself. With us, he is the man who gives the tone to public sentiment. Why? He is the great proprietor known to the country. The capital of our state exists in the soil, and the serfs who work it. They are his He wields that capital, and that capital makes our feelings, our opinions, our character. To plant is to engage in the highest craft known to our people. It is the object of ambition with all. It would not be so if the influence of the planter were an iota less in business and society.

---

* The words of Bacon have been rhymed as follows:

"Let the earth have cultivation,
Let its products have creation,
Bid the seas give circulation,
And you build the mighty nation."

And yet, unless you give the people education, they would be knocking out one another's brains with their own working implements.

How does he employ this influence? Let him ask himself the question. Could he make it greater—could he employ it in making a better population among our inferior classes, and what should be the aim of the moral man in his direction of the vast moral power which he certainly may wield over our society, and through it over our institutions? There are other questions which it may serve him beneficially honestly to analyze, and justly to resolve upon. Why is his influence less now, than what, under a proper direction of his energies and thoughts, it might become? The evil and the error is with him. He has himself to blame—none other. The man who places a low estimate upon his own pursuits, cannot surely complain that others receive him at his own valuation. He has suffered the mechanic to regard his craft with more respect, and to direct more of heart and mind to the promotion of it, until he learns to love the toil which gives him strength and power. You may see the mechanic with his badges of plane or hammer upon his apron—you will never see the plough drawn upon the panel of a planter's coach. He boasts of his negroes and his hands. Does he take up the hoe and plant himself—does he regard them, as such old and long tried friends might well be regarded, with respectful veneration? We fear not. He will avoid the subject, and is sometimes apt to disparage it. He has not availed himself of that beneficial and blessing Providence, which has given him a mind able to direct the sinews of labor—he has suffered it to lie waste and fallow, until, through neglect, it has grown as bald and barren as the soil which he has impoverished by the opposite extreme of too much use. Had he used the soil less, and the mind more, and used both of them differently, they had, both of them, been more valuable at this moment. It is truly melancholly to think that these are truths which we are writing. It is sad that the planter—he who owns three-fourth's of the state's wealth, and all of its political power—who pays more than one-half of its revenue—should be at the same time of so little real public importance. Why will he not consider these things. Why permit the subject to remain uninvestigated. Why not provide a noble answer, in a new design of a proper and masculine exertion?

We shall now seek to show that this degrading condition of things has arisen necessarily from the defective character of our Agricultural Education—if that can be styled education which fits our people for any thing but what they are to become, any pursuit but the one which most directly lies before them.

What is the education of our young planter—or rather, what is the education of him who is to become a planter? Is it ever adapted to the end in view—is it ever calculated for his pursuit? Is it not radically defective, as it lacks all connexion with the pursuits of his future life, and as it is rather apt to lead his thoughts away from a consideration of it into far and foreign channels.

MARL,

Is a compound calcareous earth found in most parts of the world, and has been extensively used throughout this kingdom, where it is supposed to have been known to husbandmen at a very early period of our history. There are, indeed, leases on record, granted in the reigns of Edward I. and II., which compel the tenants to make use of it; but, though still employed, it has been a great degree superseded by the more recent introduction of lime, of the properties of which it in some measure partakes. The term denoting it was formerly used in a very vague sense, for it is a substance consisting of various materials, and it has consequently happened, that what has been supposed to apply to one species, did not hold good when affirmed of another. Although principally deemed valuable on account of the calcareous matter which it usually contains, still its composition differs so essentially, that its influence as manure is but imperfectly understood; yet theoretic writings abound in general directions for its use, which are frequently found not to answer in practice, for their rules are drawn either from statements which have been made of the effect of its application on particular soils, or from analyses of its qualities, which, as these vary in innumerable instances, frequently lead farmers astray. Its real value can, therefore, be only ascertained through the practical experience of those who have either actually tried its efficacy, or who have witnessed it in their own neighborhood.

This ignorance of the distinguishing properties of marl has necessarily led to many mistakes in its application, which have occasioned the variety of opinions that are entertained regarding its use. In most places where it was anciently employed, and where its fertilizing influence was discovered to be eminently great, it was thought by many farmers that it could be made to supersede the use of dung; they, therefore, in many instances, sold their hay and straw, and although, notwithstanding this reduction of the quantity of putrescent manure, they still for a time obtained large crops, yet, eventually, the chemical effects of the marl exhausted the land. No second marling could operate upon it until it had been renovated by repeated applications of dung; and thus has arisen the old saying, cited by Barnaby Googe, who wrote so long ago as the middle of the sixteenth century, that '*lime and marl are good for the father, but bad for the son.*' In this manner, also, some valuable discoveries in agriculture have fallen into disuse through their mistaken application, when governed by local circumstances which were ill understood; wherever marl of a kind adapted to the soil has been applied, and that a judicious system of culture has been pursued, without either over-cropping, or neglecting the use of putrescent manure, the proverb is so far from being well founded, that the contrary may be safely affirmed.

The common *definition of marl* given us by the best writers on fossils, is—that it is composed of clay, sand, and lime, very intimately, but unequally mixed, slightly coherent, not ductile, but stiff, or viscid, when moist; most easily diffusible in, and disunited by, water, or even by exposure to the air, and by it reduced to a soft, loose, incohesive mass—for the most part composed of nothing more than calcareous earth—in which its chief value consists—combined with a little mineral oil, clay, and sometimes with ochre, or iron. It is also generally considered as a characteristic of marl, that it effervesces with acids, though to that various exceptions have been discovered; from which it has been supposed that, when deprived of that test, it contains no calcareous matter, yet it is found to produce ameliorating effects upon the soil. Notwithstanding this summary description, its appearance is, however, as varied as its properties, being of colour nearly pure white, to the darkest shades of brown and red, interveined with blue and yellow. It also exists in different kinds of land, is seldom found as a stratum of much length, but generally in detached masses at various depths, sometimes in wide and dense perpendicular layers, at others in streaks, running in lines parallal with the horizon, or again intersecting each other at right angles, usually resting on sand or gravel, and is classed, according to its qualities, into the following distinct species.

1. *Clayey marl*, which improves sandy land, and seems to act as clay in changing the nature of the soil. In land consisting of a mixture of sand and loam, or of sand and gravel, then, the application of this marl has been found peculiarly advantageous, and on all poor and thin sandy soils there is this further advantage in its use—that, from the large proportion of clay which it usually contains, it adds to their bulk and firmness, and thus has a tendency to bring them to that medium state which is the most favorable to the purposes of vegetation. It is more soft and unctuous than clay; indeed, upon slightly cutting it, it becomes so flexible, that it may be kneaded like dough, or paste, though, when the moisture evaporates, it falls into pieces: it therefore blends easily with the soil, and partaking more largely of calcareous matter, its effects, though slow, are in all the latter cases more fertilizing.

2. *Sandy marl*, which is far more frequent in Ireland than in any part of England, and is commonly found in pits of limestone-gravel, whence it is in that country usually called limestone sand. It is seldom clammy or unctuous, like the clay marl, nor does it adhere to the tongue, but crumbles between the fingers, and feels gritty; when exposed to the air and moisture it slowly chips and moulders; and it partakes of some extraneous mixtures. Its colour is sometimes like that of lead, or brown, approaching to black, and at others blue. As implied by its name, it contains an excess of sand over that of clay; for, upon analyzing it, the proportion of the former has, in most cases, been found to be from 60 to 80 per cent; and it does not effervesce with acids so quickly as the argillaceous marls. It possesses but a small degree of tenacity, and it has proved an excellent manure for clayey soils, mellowing their stiffness, and rendering them easier to work.

3. *Slaty or stony marl*, to which class, also, properly belongs that which is called *rotten limestone*, is chiefly applied to heavy land. Its operation is slow, but very lasting; land, forty years after it has

been laid on, having been found to bear a closer and a better crop of grass than that which had been recently applied.

4. *Shelly marl*, which is evidently produced by the remains of testaceous fish, which, dying in their shells, become, in process of time, converted into calcareous earth, and their bodies, when decomposed, furnish a kind of mould composed of animal substance, which is no doubt analogous to the effect of dung. It is, therefore, highly fertilizing when judiciously applied to soils of every kind, which are either in themselves dry, or which have been properly drained.

Such are the most common denominations by which marl is usually distinguished, though it is susceptible of many subdivisions by those who affect to treat the subject scientifically. It is, however, more frequently classed under the sole characters of *siliceous*, *argilaceous*, or *calcareous*, according as sand, clay, or lime predominates in its composition; but, for all practical purposes, it may be sufficient to divide it into *earth-marl* and *shell-marl.—Library of Useful Knowledge, Farmer's Series.*

Young Men's Department.

ON THE USE OF HISTORY.—BY J. INGHAM.

By studying history and examining causes and effects, a man may sharpen his penetration, fix the attention of his mind, and strengthen his judgment. Thus he learns how to exert that flexibility and steadiness which are necessary to be joined in the conduct of all affairs that depend upon the opposition of other men. All of our powers must improve by exercise. Now history presents us with the same exercises and objects which we meet with in the transaction of business through life. Therefore they excite the same kind of reflections, and give the same exercise to our thoughts, and thus produce the same turn of mind. By the use of history we begin our acquaintance with the world sooner, and bring into the business of it such a habit and temper of mind as is acquired by passing through it; and which will make us appear to far greater advantage in it, and not such mere novices, upon our introduction into it, as we should otherwise be. We should study history as we would philosophy, and then we are certain to collect and distinguish such principles and rules of conduct which are generally true; because they are conformable to the invariable nature of things; and by so doing we can also form to ourselves a system of ethics and politics on a solid foundation. The impressions which this anticipated knowledge makes upon us, it is certain will not be so deep as those which are the result of our own personal acquaintance; and our maxims of conduct formed in this manner, will not be so firmly rivited in our minds. But then they will have the advantage of being more correct, and of being a better guide to us than any thing we could have learned from our own random experience. This is because the examples of history are generally complete. History opens every thing before us. We can view men and things at their full length, as we say; and we generally see them through a medium which is less partial than that of experience. Whereas in real life every scene opens very flowery, we see therefore but a small part of an object at one time, and are consequently liable to be deceived into a very fallacious judgment. It was a want of acquaintance with history that made the Chinese express their wonder and astonishment to find their country make so small a figure on the map of the world, which was showed them by the Jesuits of that country. Without the aid of history, the advantages of our rational nature would be extremely circumscribed; and the more complete, the more exact and comprehensive is our furniture of historical knowledge. "Knowledge is power;" and all the excellence of human nature, all the advantage we have above the brutes, is derived from the use of our intellectual powers. History gratifies that curiosity which is common in man. It is delightful to those whose intellect is just dawning, and to those whose faculties are matured by the lapse of time and the process of cultivation. It traces the progress of man from the savage state, and through the intermediate degrees of civilization, to the nearest approaches of perfection. It rates the effects of laws and political regulations which have been produced by external violence; and no less astonishing changes, which have been occasioned by the corruption of ancient systems of governments. It points out the sources of the errors of former days, and leads us to the discernment of the means which have crowned with success such plans as have been productive of benefit to the public. It tends to prevent the recurrence, and to diminish the remaining influence of superstition and religious persecutions, and of the long train of calamities with which those enemies of human happiness are accompanied. For who can read the memorials of the papal usurpation in the dark ages, and of the melancholy consequences by which they were followed, without imbibing a spirit of tolerance, and a determined disposition to discountenance any claims which may receive the unjust assumption of inordinate spiritual power. We learn, also from history, that Gideon, the renowned champion and Judge of Israel, quitted the threshing floor to preside in the public assembly of his countrymen; and Cincinnatus, the conqueror of the Volsci, left his plough to lead the Roman armies to battle; afterwards declined the reward gained by his victories, to return to his native fields. In short, it instructs us how miseries and misfortunes may hereafter be avoided. Natural history, which generally signifies a knowledge of the whole world, is of great use to all who wish to become acquainted with natural objects. Every young man, by acquiring a knowledge of natural history, can take great delight in an object of almost any kind. The farmer ought to possess a thorough knowledge of this branch of education, which would make him admire the works of GOD with more pleasure, and therefore learn wisdom from the works of HIS ALMIGHTY POWER.

Manheim, Herkimer co. August 11*th*, 1836.

HINTS TO YOUNG FARMERS.

Several numbers, being "Hints to Farmers," were written by the Conductor, and published, some three or four years ago. To give them a more extended circulation, we intend to transfer such of them occasionally, into the Cultivtaor, as may seem most worthy of the notice of our young readers.

On leaving the paternal roof, to seek my fortune in the wide world, when about 18 years of age, my father gave me this parting admonition: "My son, take care always to *let well enough alone.*" The occasion served to impress the advice deeply on my mind, and amid the diversified scenes of the subsequent thirty-five years, it has seldom been forgotten; and I have reason to believe it has had a very salutary influence upon my prosperity and happiness. It has afforded, withal, something of a standard by which to gauge the indiscretions of others. How often has a disregard, in others, to this maxim, reminded me of the Italian epitaph: "I was well, wished to be better, took physic, and here I am." The true philosophy of happiness is to depend on one's self for the blessing—on the lively exercise of the virtues which can alone confer it. The man who is industrious and frugal, and who scrupulously fulfils the relative and social duties, whatever be his condition or profession, stands the best chance of enjoying a goodly portion of the comforts and pleasures of life, and of perpetuating in his children his habits and his virtues. While he who would live by the industry of others, or who expects to find happiness in the frail applause which wealth or ostentation may extort from those around him, seldom succeeds in his desires.

Tom Tape was my schoolmate. Tom had rather high notions from his boyhood; and persuaded his father to put him to a merchant. In due time Tom became the master of a shop of goods, was attentive and fortunate, and acquired a snug estate. Had he *let well enough alone*, he might now have been the head man of our town. But pride got the better of prudence, and persuaded him that he might do *better* at New-York. He went there, figured as a *wholesale* merchant, for which neither his capital nor his experience were adequate, for three years, and then came the notice in the state paper for his creditors to show cause, &c.

Tjerck Wessel's farm joined mine. He *was* one of our best farmers, and understood the value of "*come boys*," as well as any one. Good luck was so constantly by his side, that he considered that any man might get rich who had a mind to. Yet he could not *let well enough alone*—he wished to DO BETTER. He therefore removed to the village and opened a tavern, and had the promise of the justice courts and of the stage custom. "*Go boys*," did not improve the farm, and it soon became neglected and unproductive. By and by the courts were removed by law, the stage went to the new hotel, and the temperance era wound up the tavern business. Tjerck has got back to the farm, with habits very much altered, and his fortune not a little impaired. Yet he consoles himself, that he is not half so bad off as

Joe Sledge, once our master blacksmith, afterwards a merchant, and now a journeyman. Joe was so famous for his edge tools, that people came to him from all parts. He had his journeymen and his apprentices, and was always present to oversee them, and to be seen by his customers, as all master mechanics ought to be. Joe got rich, because he was adapted to his business, and his business adapted to him. Joe thought, with Sam Patch, that some things could be done as well as others—and that because every body liked him as a blacksmith, they must like him as any thing else, forgetting that it was his *trade*, and not his mind nor his person, which had brought him into notice. And as *merchant* was rather more respectable than *mechanic*, and withal a more tidy employment, he in fact sunk the blacksmith, and became a dealer in tapes and sugars. It fared with Joe as it generally does with others who embark in new business, of which they know nothing, after they have arrived at mature manhood. Those who had been bred to the business, proved successful rivals, and the sheriff finally closed his mercantile concerns, by selling the entire effects of "a merchant unfortunate in business." Joe insists to this day, that if he had *let well enough alone*, he might have been as well off as the best of his neighbors.

Time would fail me to narrate half the cases which have come under my observation, of men abandoning steady habits, and fair prospects of wealth, in the employments in which they had been educated, and in which they were best calculated to succeed, for the very hazardous chance of doing better in business in which they had every thing to learn. The fascinating charms of fashion and show, the ostentatious pride of wealth, and the alluring smiles of office, are as bad as were the syrens of Calypso, to beguile men from the paths of true happiness. The moderate but certain gains which are the reward of industry and frugality, are the most abiding in their nature, and most benign in their influence. It is the mild early and latter rains which induce fertility, and cover the earth with fruitfulness; while the tempest and its floods cause waste and desolation. The mushroom grows up in a night, and withers in a day.

The farmer should be the last to be dissatisfied with his condition. Of all classes he is the most independent. He produces within himself more of the necessaries and comforts of life than any other class. If he does not find the elements of happiness on the farm, his search for them elsewhere, I fear, will be in vain. But he must not forget that it is the province of the *mind* to arrange and combine these elements; and that it becomes qualified to perform this office, in proportion as it is enlightened and cultivated. The mind, like a garden, will yield the most grateful fruits when nurtured with care; and few have more opportunities, or are better requited for their labors, in cultivating both, than him who thrives by the plough.

TO PROMOTE HEALTH.

RECIPROCAL ACTION BETWEEN THE SKIN AND OTHER ORGANS.

In tracing the connexion between suppressed perspiration and the production of individual diseases, we shall find that those organs which possess some similarity of function sympathize most closely with each other. Thus the skin, the bowels, the lungs, the liver, and the kidneys sympathize readily, because they have all the common office of throwing waste matter out of the system, each in a way peculiar to its own structure; so that if the exhalation from the skin, for example, be stopped by long exposure to cold, the large quantity of waste which it was charged to excrete, and which in itself is hurtful to the system, will most probably be thrown upon one or other of the above-named organs, whose function will consequently become excited; and if any of them, from constitutional or accidental causes, be already weaker than the rest, as often happens, its health will naturally be the first to suffer. In this way, the bowels become irritated in one individual, and occasion bowel complaint; while in another it is the lungs which become affected, giving rise to catarrh or common cold, or perhaps even to inflammation. When, on the other hand, all these organs are in a state of vigorous health, a temporary increase of function takes place in them, and relieves the system, without leading to any local disorder; and the skin itself speedily resumes its activity, and restores the balance between them.

One of the most obvious illustrations of this reciprocity of action is afforded by any convivial company seated in a warm room in a cold evening. The heat of the room, the food and wine, and the excitement of the moment, stimulate the skin, cause an afflux of blood to its surface, and increase in a high degree the flow of the insensible perspiration; which thus, while the heat continues, carries off an undue share of the fluids of the body, and leaves the kidneys almost at rest. But the moment the company goes into the cold external air, a sudden reversion of operations takes place; the cold chills the surface, stops the perspiration, and directs the current of the blood towards the internal organs, which presently become excited,—and, under this excitation, the kidneys, for example, will in a few minutes excrete as much of their peculiar fluid as they did in as many of the preceeding hours. The reverse of this, again, is common in diseases obstructing the secretion from the kidneys; for the perspiration from the skin is then altered in quantity and quality, and acquires much of the peculiar smell of the urinary fluid.

When the lungs are the weak parts, and their lining membrane is habitually relaxed, accompanied by an unusual amount of mucouss secretion from its surface, cold applied to the skin throws the mass of the blood previously circulating there inward upon the lungs, and increases that secretion to a high degree. Were this secretion to accummulate, it would soon fill up the air-cells of the lungs, and cause suffocation; but to obviate this danger, the Creator has so constituted the lungs, that any foreign body coming in contact with them excites the convulsive effort called coughing, by which a violent and rapid expiration takes place, with a force sufficient to hurry the foreign body along with it, just as peas are discharged by boys with much force through short tubes by a sudden effort of blowing. Thus, a check given to perspiration, by diminishing the quantity of blood previously circulating on the surface, naturally leads very often to increased expectoration and cough, or, in other words, to common cold.—*Combe's Physiology.*

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at this office, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 21st Aug. and 20th Sept. inclusive. Numbers under ten not noticed.

POST-OFFICES.		POST-OFFICES.		POST-OFFICES.	
*Alexandria, D. C.	17	*Dundas, U. C.	91	Pittsburgh, Pa.	12
Alumbank, Pa.	11	Eugene, Ia.	22	*Pottsdam, St. Law.	15
*Auburn, Cay.	22	East Standish, Me.	11	Pikesville, Md.	11
*Benton, Yates,	27	Freehold, N. J.	14	Rockaway N. J.	14
Brinkleyville, N. C.	11	Fenn's Bridge, Ga.	11	Richfield. Ohio,	11
Berlin, Renss.	24	Govanstown, Md.	11	*Richmond, Va.	33
Beaufort, S. C.	11	*Gorham, Ont.	21	Schevenck's store, Pa.	11
Bloomington, Ill.	11	Grafton Rens.	13	Same Creek, Md.	22
Bridgeville, Del.	11	*Homer, Cort.	37	Sandy Hill, Wash.	14
*Barnard, Vt.	17	Lincoln, Ill.	11	Salem, Ohio,	11
Cave hill, Ten.	11	Lansingburgh, Rens.	11	*Salina, Ky.	22
Cheshire, Ct.	11	*Mechanicsville, Sar.	13	*Sherburne, Chen.	18
Cabell c. h. Va.	11	*Montreal, L. C.	22	Somerville, N. J.	11
Cross Keys, Va.	11	Monrovia, Md.	11	*Troy, Rens.	55
Charlestown, Va.	22	Monroe, Mich.	11	*Terre Haut, Ia.	29
Clinton, Miss.	10	Millsboro, Del.	11	*Utica, Onei.	30
Coxsackie, Greene,	18	*New-York city,	80	*Upper Marlboro, Md.	27
Canandaigua, Ont.	10	New Palts, Uls.	13	Utica, Ia.	11
*Catskill, Greene,	16	Opelousa, La.	11	Willington, Ct.	11
Delhi, Del.	10	*Port Tobacco, Md.	33	Weathersfield, Ct.	11
Danville, Pa.	12	*Po'keepsie, Dutch.	36	Youngstown, Ohio,	11

*.Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. Sept. 24.	Boston. Sept. 21.	Philadel'a. Sept. 23.	Baltimore. Sept 20.
Beans white, bush........	1 50.. 1 75	.. 1 75	..1 75	1 50..1 75
Beef, best. cwt...........	9 50..10 00	6 00.. 7 00	8 00..9 00	7 00..8 50
Pork, per cwt............	..12 50	10 00..11 00	12 50	8 00..8 50
Butter, fresh, pound, ...	22.. 24	20.. 27	17.. 19	20.. 38
Cheese, pound, ...	9.. 11	10.. 12	10.. 11	
Flour, best, bbl......	8 75.. 9 50	9 00..10 00	8 00..9 50	7 50..9 00
GRAIN—Wheat, bushel, ..	1 87.. 2 00	1 98.. 2 00	1 95..2 04	2 20..2 33
Rye, do. ..	1 06.. 1 12	1 08.. 1 10	1 20..1 25	1 00..1 12
Oats, do. ..	54.. 58	55.. 58	48.. 51	43.. 45
Corn, do. ..	1 12.. 1 81	1 20.. 1 25	1 00..1 05	95.. 97
SEEDS—Red Clover, lb...	10.. 11	11.. 12	10.. 11	11.. 12
Timothy, bushel,.	2 00.. 2 12	3 00.. 3 12	2 00..3 00	3 00..3 50
WOOL—Saxony, fleece, lb.	65.. 75	60.. 75	70.. 75	50.. 68
Merino, lb..... .	55.. 65	60.. 70	60.. 70	48.. 55
1-4 and com. lb...	22.. 35	40.. 58	40.. 59	36.. 40
Sheep, ...	....	2 25.. 3 57		
Cows and Calves,........	18 00..35 00	23 00..42 50	....	25 0..45 0

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

VOL. III. ALBANY, NOVEMBER, 1836.—(67 STATE-STREET.) No. 9.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*

TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—GEORGE C. THORBURN and ALEXANDER SMITH, New-York. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

MEMORANDA,

FOR THOSE WHO WOULD IMPROVE IN HUSBANDRY.

Draining, *manuring*, *alternating crops*, and *root culture*, are the best and cheapest means of increasing the profits of a tillage farm—they form the basis of good husbandry.

1. *Draining*—The first requisite is to divest a soil of surplus moisture. Lands that are wet upon the soil or sub-soil, will not bring good grain or grass. If the evil is owing to surface water, it stagnates in summer, and becomes prejudicial to crops growing upon it, and to animals. If it proceeds from springs, it keeps the temperature of the soil too low for healthy vegetation. In either case it prevents the land being worked early, or during wet seasons, and retards the decomposition of the vegetable matters, which should serve as the food of plants. When properly drained, wet or marshy lands are among the most productive soils, as they generally abound in vegetable matter, accumulated and preserved by water. Without draining, they are comparatively unproductive, and are often nuisances.

2. *Manures* are the true food of plants, be the speculations of theorists what they may. Every farmer may demonstrate this truth in his practice. We can no more obtain good crops from a poor soil, than we can obtain good beef from a lean pasture. Vegetable matters constitute alike the raw material for beef and for corn. The elementary matters of both are materially the same.—Every vegetable and every animal substance, or whatever has been such, however nauseous and offensive, contains food for our farm crops; and the fertility of our soil, and the profits of our husbandry, will depend in a great measure upon the economy with which we husband this vegetable food, and the judgment with which we apply it to our crops. Without good crops we cannot rear good animals; and without animals we cannot have dung to enrich our grounds. Every crop we take from a field serves more or less to exhaust the soil of fertility; and unless we return to it some equivalent in the form of manure, it will in time become a barren waste. Again, as animal and vegetable matters begin to ferment, and to dissipate their fertilizing properties, as soon as they are brought in contact with heat, moisture and air, they should be buried in the soil in the spring at farthest, in an incipient state of fermentation. And as the hoed crops, such as corn, potatoes, beans, ruta baga, &c. thrive best upon the volatile parts of manure, the long manure should be fed to them. The farmer who has a good soil, should take care to keep it good; and he who has a poor soil should strive constantly to make it better, as every advance he makes in improving it, increases his productive capital.—This preservation, or increase of fertility, cannot be well effected, without a due regard to

3. *Alternating Crops.* Few soils will bear a repetition of the same crop for successive years, even with the aid of dung, without diminution of product, whether in tillage or grass. One reason of this is, that each kind of crop takes from the soil a specific food, which other kinds do not take in like quantity. Hence, during an intermission of four or five years there is ordinarily restored to the soil the specific food of that kind which it is capable of growing. Cultivated crops are sometimes grouped, in alternate husbandry, in three classes, viz. dry crops, embracing all the small grains, and which are most exhausting; 2d, grass crops, embracing timothy, orchard grass and other perrenial varieties, which exhaust less, but which run out, or sensibly diminish in product, in a few years; and 3d, green crops, comprising clover, turnips, &c., which pulverize and ameliorate the soil, and exhaust least of all. Where convenient, a crop of one of each of these classes should follow in succession, the grass continuing to occupy the ground while it continues to yield a good crop of hay. If retained too long in grass, the soil becomes too compact, and impervious to the genial influences of heat and air. It is particularly recommended, that two dry crops should not succeed each other, except wheat or rye may follow oats, when the latter is made a fallow crop upon an old grass ley. Although the deterioration under a bad system of cropping may be slow, and almost imperceptible, yet both science and experience teach us that it is inevitable, and fatal to the ultimate hopes of the husbandman. Many of the old states afford lamentable evidence of this truth.

4. *Root Culture* is one of the best gifts which modern improvement has bestowed upon husbandry. It gives the most animal food with the least labor; it is, under good management, the most certain in its returns; it gives the most manure; it best amoliorates the soil, and fits it for dry crops; and it affords an important link in the chain of alternation. It is considered the basis of good husbandry in Great Britain, Flanders, Germany and France, and has transformed the county of Norfolk from a waste to the most profitable district in England. Highly as the beet culture is prized in France, as affording a material for the profitable fabrication of sugar, it is no less valued as an alternating root crop, and as affording a material for making good beef and good mutton. The roots that may enter extensively into our husbandry, are the potatoe (and the varieties of these that are best for table, afford the most nutriment to cattle) ruta baga, mangold wurtzel, carrot, parsnip and sugar beet.

As subsidiary to the preceding cardinal points in good farming, we give the following, which, although they may appear to many to be hackneyed truisms, are nevertheless so important as to be worth often repeating.

5. *Keep* none but good farm stock, whether as regards breeds or individuals. Sell the worst of your flocks. Like produces like; and the gain in breeding from the best you have, greatly counterbalances the extra price that the prime individual will bring in the market. A cow that gives eighteen quarts of milk per day in June, costs no more in her keep than one that gives but six quarts; yet the product of the first is three-fold, and the profits four-fold, those of the latter. The fleece of the Saxon or Merino sheep is twice as valuable as that of the common one, though the cost of keeping them is equal. And the same corn that will make 100 lbs. of pork upon a long-legged, long-snouted, razor-backed hog, will put 150 or 200 lbs. upon the frame of a Berkshire or other improved breed.

6. Keep your farm stock well. A certain quantity of food must be given to keep them alive, all beyond this goes to increase growth, or is converted into meat, or milk, or wool; and if a little extra food is in this way profitable, much must be proportionably more so, for the more food you thus convert, the greater your return in labor, flesh and milk.

7. Cultivate no more land than you can improve, with a reasonable certainty of handsome net profit, embracing in the items of expenditure the interest on its value, fences, taxes, manure and labor. The good farmer, who raises 80 bushels of corn on one acre of land, clears the price of 50 bushels, which at 50 cents the bushel, is $25. The poor farmer, who cultivates *four* acres of corn, and gets 30 bushels on an acre, barely gets compensated for his labor and expense. We estimate the expense of raising and harvesting an acre of corn at $15, or the price of 30 bushels of the grain.

8. Buy good implements and tools, though they cost more than poor ones, and always keep them in repair for use. A good plough is drawn with half the team that a bad one is, and does the work twice as well, provided the ploughman knows how to use it. One

good ploughing is better than two bad ones. Hence the farmer is soon compensated for the additional cost of the good article. The same remark holds good in regard to other implements and tools of the farm. In row culture, the cultivator will pay for itself in a season, in the economy of labor; the straw cutter will do the like in economizing fodder, and the drill barrow is a subject of equal economy in root culture.

9. We hardly need admonish the reader to use none but clean good seed; for every man knows that he will reap only what he sows—the cheat controversy to the contrary notwithstanding.

10. And lastly, we should disregard our duty, did we not press upon the consideration of every farmer the importance of agricultural publications, as the cheapest and most certain means of improving in the practice and profits of his business. These bring to his notice constantly the improvements and discoveries that are going on in the business of agriculture, and they detail the practice of the best farmers of our country. He that does not keep pace with the improvements of the day, in husbandry, as in other arts, cannot long find pleasure or profit in his employment. Those who stand still and content themselves with the practice of their fathers, will soon find that the business, active world, have all gone ahead of them. But we urge this matter particularly as an efficient means of instructing and qualifying the young for the duties of mature years—of stimulating them to acquire useful knowledge, and that confidence and self-respect which should ever characterize the yeomanry of a free country. The seed must be sown, and the mind be nurtured in the youth, if we would expect a harvest of respectability and usefulness in the man.

PENNSYLVANIA HUSBANDRY.

Earthing Potatoes—A very intelligent farmer from the valley of the Susquehannah, Union county, Pa. has stated to us verbally, some of the agricultural practices which prevail in his neighborhood, and which he is confident may be adopted with profit by others. One of these is raising potatoes without earthing. For this crop a young clover ley is preferred. The manure is drawn out and spread as the ground is ploughed, the potatoe sets are dropped in every third furrow, and of course covered with the next furrow slice. The ground is afterwards harrowed, and the crop kept free from weeds, by the harrow or cultivator, and hoe, *but the plants are not earthed.* The plough is only used in gathering the crop. Another mode is to draw shallow furrows, at the distance intended for drills, drop the seed, and cover by gathering two furrows upon the seed. The intermediate spaces are ploughed when the crop is first dressed, and turned in equal parts towards the two adjoining drills. The soil a sandy loam.

We have practised the first mode, except that our crop was earthed with a plough; and we are persuaded, that had we left a plane surface, the crop would have been benefitted—for three reasons, first, because by earthing with the plough the seed was too deep, 10 or 12 inches, and could not receive the genial influence of heat and air; second, because the crop suffered more from drought in consequence of the sharp ridges into which the surface had been moulded, than it would if the surface had been left flat; and third, because the plough, by throwing a portion of the manure and sod to the surface, diminished the fertility of the ground. Our ground was partly in a moist swale, and partly on a sandy knoll. The crop in the swale gave at the rate of more than 600 bushels to the acre product; while that on the knoll, a severe drought having intervened, gave less than 300 bushels. The whole was highly manured.—From this experiment we infer, that in damp and stiff soils, it will be best to deposite the seed near the surface, and to earth the plants with the plough; and that where the soil is light and dry, the seed should be planted deeper, and the plants not earthed. By earthing the plants, it will be perceived, that double the surface is exposed to the drying influence of the sun, that there is where the ground is left flat. Ridges correct the defects of a wet soil, and they increase the evils of drought on a dry one.

Clover—The practice, says our informant, is to mow clover only one year, as cattle food, and then to turn it under as food for the crop—thus ensuring the return to the soil of a mass of rich vegetable matter. Clover is a biennial plant, and of course cannot be depended upon as a *green crop* after the second year; and as this there constitutes the main dependance for winter forage, the timothy not being grown, it cannot be depended on, after the second year, *for hay.* Hence clover is not only sown with small grains, but in the Indian corn grounds, at the last dressing of the crop—the corn not being hilled. The latter practice is found highly advantageous, and is being extended.

We can add our own experience in favor of sowing clover with small grains. It is our general practice; and we find we are doubly paid in the autumn feed, and quadruply paid in the feed and the manure which the green crop returns to the soil. The clover not only imparts fertility, when turned under, but its roots divide and break the soil while growing, and render it pulverous as they decay. In sowing clover designed for a green crop, and indeed in all cases where it is to constitute the only herbage, at least ten pounds of seed should be used on the acre. The thicker the plants the finer and better the herbage; the more abundant the roots, the greater benefit to the soil, both as it regards pulverization and fertility.—With regard to the utility of seeding corn fields, the only doubt we have, is, whether the clover would acquire sufficient strength to withstand our northern winters. As it would be sown in July, about the time we put in our ruta baga, we are inclined to think it would acquire sufficient maturity. While on the subject of clover, we will state our belief, resulting from experience, that it may be profitably grown on stiff soils and marsh land, providing they have been sufficiently underdrained—the only impediment to its growth on such soils being water upon the soil or sub-soil, within the reach of the roots.

Sheep in Corn—Our informant states it to be a good practice to *turn sheep into the corn fields,* after the last hoeing in July. They will not eat or injure the corn, but will eat the grass which springs up. The corn affords the shelter which those animals require, and serves to protect them from the fly, which is vexatious, and often seriously prejudicial to them, during the hot weather of August. But for the high respectability of our informant, we should be disposed to doubt the utility of this practice.

Liming—The use of lime for agricultural purposes in the valley of the Susquehannah, between the Blue Ridge and the Allegany, where our informant resides, is of recent introduction, but it is found highly efficacious, and is increasing. The common application on the alluvial flats is fifty bushels the acre. As lime-stone abounds in the neighborhood, it is sold at the kilns at ten cents the bushel. It is burnt with anthracite coal, which is there bought at two dollars the ton. The process of burning is cheap and simple. A hole is excavated in the side of a hill, in the shape of an inverted cone, with an open passage from the base of the pit to the base of the hill, by which to ignite the coal when the kiln is filled. The pit is then filled with broken lime stone, and broken anthracite, intermixed; the top is well covered with sods and earth, and fire communicated below. No attendance upon the kiln is required, and in about eight days the lime may be drawn for use.

Ascending the valley of the Susquehannah, and above the Allegany range, we meet with no lime-stone till we pass some distance into the state of New-York. Hence this material, as soon as the facilities of water communication, which are begun, shall be completed, must form a prominent article of export from our state into the upper valley of the Susquehannah. The application of lime to the red sand stone formation is found to be particularly serviceable. As this formation extends, with partial exceptions, from the Connecticut river to North Carolina, the publication of this fact may excite new attention to the subject. If our recollection serves us, this formation shows itself, according to Prof. M'Clure's geological map, twenty or thirty miles on Connecticut river, is seen to underlay the Pallisado rocks upon the west bank of the Hudson, emerges to the surface near New Brunswick, and occupies a district twenty to thirty miles broad, through West New Jersey, Pennsylvania, Virginia, &c.

"THE GOOD OF THE WHOLE COMMUNITY IS THE GOOD OF EVERY INDIVIDUAL."

There is scarcely a principle so important to be inculcated, as the one we here quote. The well-being of a state, or of a community, does not so much depend upon its aggregate wealth, as upon the fair distribution of this wealth among the different classes and individuals who make up its population—not so much upon the learning and wisdom of a few, as upon the intelligence and good habits of the mass. He who seeks, therefore, to instruct the public mind in useful knowledge, to inculcate moral and industrious habits, and to promote the good of others,—fulfils one of the first duties of life, and pursues the course best adapted to promote his individual good.—

The pleasures of the mind, resulting from the conscious performance of acts of good will to man, far exceed those which spring from the indulgence of our animal appetites. This principle holds good, not only as regards our mental enjoyments, but the pecuniary prosperity, and general intelligence of a community, serve to promote the good of every individual, in a pecuniary, political and moral point of view,—by promoting industry and social order, and multiplying the courtesies and comforts of life.

Wealth and knowledge are but the *means* of happiness. It is the mode of *applying* them that renders them a blessing to the community, and a source of genuine happiness to the individual. Where they are employed to administer to bad passions,—to pamper fashionable vices,—or to oppress and degrade the ignorant and the weak,—they then serve to contaminate public morals, and to inflict on society the most calamitous evils. But where, on the other hand, they are employed in furthering public improvements,—to strengthen and encourage the weak,—to instruct the ignorant,—to teach, by example as well as precept, exemplary habits :—when, in fine, they are applied, as philanthropy and christianity admonish us they should be, in furthering the happiness of a community—of a state—of a nation—of the human family—then they become truly both public and private blessings.

We seldom stop to inquire, how greatly we are dependent upon others for the enjoyments of life. Take, by way of illustrating our dependence upon others, the case of the merchant. He depends, for the sale of his goods, and the profits of his business, upon the custom of the farmer, mechanic and manufactureer, who make up most of the population of his neighborhood. If these are poor, from habits of indolence, from a want of competent knowledge to manage their affairs with profit, or from indulgence in extravagance or dissipation, his business must be limited, and his profits trifling.—But transform this community into intelligent, industrious and sober men, and how soon and how greatly his prospects change. Every thriving neighbor adds to his business, and increases the means of his enjoyment. How deep an interest, then, should the merchant feel, in promoting the prosperity of all around him—in diffusing useful knowledge, and in inculcating good habits. The same dependence exists throughout all the classes of society. Each class, and each individual, therefore best promote their own good, by promoting the good of the whole community.

BERKSHIRE CATTLE SHOW.

Although it would not comport with the plan of our publication, to take cognizance of the many cattle shows which are annually held where the Cultivator circulates, yet that of Berkshire is always entitled to a passing notice, as being a pioneer in the good work, and as deserving high commendation for the commendable spirit with which it has been sustained, and the great improvements which it has produced, in the agricultural, moral and intellectual condition of the county.

The 26th anniversary of the Berkshire Agricultural Society, was held on the 5th and 6th ult. and although the weather on both days was wet and disagreeable, yet the attendance was larger, and the show of animals more numerous, than on any former occasion.—About 150 premiums, amounting in the aggregate, to more than $600, were awarded to successful competitors. Of this amount, $165 were premiums on crops, eight of which were awarded on crops of ruta baga—$28 on the products of the dairy—$250 on animals—$40 on ploughing, and $125 on manufactures. The reports of the committees indicate a progressive improvement in the various departments of mental as well as of rural culture. That of the committee on agriculture, is particularly flattering in these points of view, as will be noticed in the following quotation;

"The uncommon severity of the late winter," say the committee, "has injured or destroyed most of our fine fruit trees. If we wish to enjoy the health-giving luxury of delicious fruits, and do good for others,* we must continue to plant and engraft fruit trees of the finest varieties. The farmer should never despair; it is no part of the character of a good farmer, to be fickle or desponding. There were more than 60 applicants for agricultural premiums, [on crops.] Inquiry was made by the oldest member of the committee of each one—whether in the management of their farms they used ardent spirits? Of the whole number, there were but two who used this fearful poison—a fact that tells well for the high moral advancement in the holy cause of temperance, of the leading farmers of old Berkshire. Your committee have observed *an air of neatness and improvement in the cultivation of our farms: a spirit of inquiry, a desire for improvement is abroad among our farmers;* many of them take agricultural papers, abounding with useful information. *Your committee would respectfully recommend the* Cultivator, *as a very cheap and very useful agricultural paper, published at Albany, and worthy the patronage of our farmers.* It seems to be the generous and laudable ambition of many, very many, of our agricultural brethren, to *respect themselves, and by doing good and communicating good, by promoting education, temperance, refinement and good morals, to* EXALT AND DIGNIFY THE ANCIENT AND NOBLE PROFESSION TO WHICH THEY BELONG."

GORDON'S GAZETTEER OF NEW-YORK.

This is a new publication, of 900 pages 8vo. We have had time only to give a cursory examination to a copy of this work, politely presented to us by the author But even this slight perusal has satisfied us, that it is a work of standard merit, and comprises a mass of information, no where else to be found in a condensed form, of great value, and of practical use, to the farmer, and to every man of business in the community. It contains an excellent map of the state, a map of each county, and maps of the cities and principal villages. It is published by the author, Thomas F. Gordon, a gentleman of high standing and literary acquirements. The work comprises,

I. A concise history of the state, from its colonization down to the adoption of the federal constitution—well adapted for the youth of the age, as well as for men of maturer years, who have not yet studied our history—all important to be known by every man who exercises the privileges of a freeman. This history occupies about 100 pages of the work.

II. A Gazetteer, containing,

1. A physical description of the state, its general boundaries, subdivisions, mountains, vales, planes, &c.

A particular notice of the St. Lawrence basin, comprising the country whose waters empty into that river and the great lakes—and of the valley of the Hudson, and of its tributaries.

Notice of rivers flowing southward—Delaware, Susquehannah, Allegany.

Geology—formations, mineral constituents, soils, condition of agriculture, &c.

Climate—embracing meteorological tables, &c.

Internal improvements.

2. Political view—explaining the structure of our government, enumerating its officers and their duties—and embracing an abstract of our laws in regard to taxation, to the militia, to public health and public instruction—the regulations of trade and of internal police—in regard to time, weights and measures, and of money of account—to incorporations, to the judiciary, to the criminal code, to jails, penitentiaries and houses of refuge, and to pauperism—and embracing also numerous statistical tables, in regard to population, manufactures, live stock, &c.

3. Topography—describing each county, town and village in the state—its central distance from Washington and Albany—its population, manufactures, improvements, and whatever is most likely to interest the reader.

We have spoken thus largely of the contents of this book, in order to show its adaptation to the wants and business of our inhabitants, and to recommend it particularly to their notice and their patronage.

BUTTER.

The following remarks upon the manufacture and preservation of Butter, were written by the conductor some three or four years ago. With some slight alterations, they are now submitted to the readers of the Cultivator, as containing the most essential rules to be observed in the management of this important household art:

---

* This brings to mind the oft-repeated excuse for not planting trees, viz: that he, the planter, may not live to enjoy the fruits. The excuse is misanthropic, and repugnant alike to duty and to interest. If our fathers had been influenced by this spirit of selfishness, how stinted would have been our "health-giving luxury" of enjoying delicious fruits? Let us requite the obligations we owe to our ancestors, by conferring greater ones upon the next generation. So far as mercenary views are to govern, they decidedly urge to planting: For what adds more to the intrinsic value of an estate, than an abundance of choice fruits? Fifty dollars expended in planting, will give a better return to our children, or heirs, in *money*, to say nothing of the "health-giving luxury" which it will impart to them, than the like sum loaned on interest—even compound interest. Apples have become almost as useful in the economy of the household and the farm, as corn; and they are raised with far less labor, and are probably more certain in their product.

Butter is one of the staple productions of our state; and every hint that serves to improve its quality, or increase its quantity, must be useful. There are various methods of making butter, as from new milk, lobbered milk and cream; and there is certainly a great diversity in its quality. The cause of this difference may partially be owing to the season, the feed and the breed of cows, but most is owing to management. Our dairy women are very much like their good husbands, apt to be somewhat conceited, too wise to learn, and generally believe their own mode the best, and never suspecting that philosophy or science can have any sort of connection with this humble branch of household labor. All seem to be agreed, however, upon the following points:

1. That cleanliness is the first requisite, for many and very obvious reasons.
2. That every sort of liquid should be separated from the butter—because if such is suffered to remain, it soon becomes rancid, and taints the mass.
3. That the salt used to preserve it should be pure, because bad salt will not keep it sweet—rock salt, and that produced by solar evaporation, being deemed best.
4. That no more salt be used, than is necessary to render the butter palatable—all excess being injurious to the taste, and an imposition upon the buyer.
5. That the vessel in which it is packed should be incapable of imparting to it any bad flavor—wood abounding in pyrolignic acid, and red earthen being improper—the first giving a bad taste, and the latter, by reason of the decomposition of the glazing, which contains lead, being in a measure poisonous.
6. That when packed, the external air should be wholly excluded from the butter—because the air soon induces rancidity.

Our dairy women have added two other rules, which they deem all important to the *preservation* of *good* butter, but which I am induced to think are but little known and less practised, viz:

7. That no water be suffered to come in contact with the butter in any stage of the process—because it tends to lessen the essential volatile matter which gives to butter its rich peculiar flavor.
8. To have the salt incorporated with the butter in the first operation of working, and after an interval of twenty-four hours, to apply again the butter ladle until the whole of the liquid is expelled. By this operation the salt is dissolved and effectually blended with the butter, which is freed more effectually from buttermilk.

And *we* will add two other rules, viz:

9. When the cream is employed, it should be somewhat sour, though not stale, as in this state the butter more readily separates from the serous or cheesy matter.
10. That the temperature of the cream, when submitted to the churning process, should not be below 52, nor above 62 degrees—a lower temperature rendering the separation difficult, and a higher one essentially impairing the quality of the butter. A thermometer with a sliding guage, adapted to this and other household purposes, will cost $2 or $2.50. The temperature may be regulated without bringing water in contact with the cream, by setting the churn in a tub of water, either hot or cold, as may be required to change the temperature of the cream.

We sat down to write merely an introduction to two tables, which we are about to copy, and which indicate the temperature at which cream may be most advantageously wrought into butter. It may be said that these will serve but little purpose, as a thermometer is seldom seen in a dairy house; yet it will show the importance of keeping one.

The Highland Society of Scotland offered a premium on experiments on the temperature at which butter can be best procured from cream. The following tables show the result of a part of these experiments. The detail may be found in vol. vii. of the Society's transactions, p. 194 to 201.

No.	Date of experiment.	No. of gallons	Mean temp.	Time occupied churn.		Quantity of butter obt'd			Quantity of milk churnd	
	1825			hours.	min.	lb.	oz.	dwt.	lbs.	oz.
1	August 18.	15	55°	4	0	1	15	7.5	8	9
2	" 26.	15	60	3	15	1	15	3.2	8	8
3	" 30.	15	62	3	0	1	14	0	8	8
4	Sept. 4....	15	64	3	1	1	12	12.7	8	8
5	" 9....	15	70	2	30	1	10	10.6	8	7

OBSERVATIONS.

"The butter produced in the first experiment was of the very best quality, being rich, firm and well tasted.

"The second experiment yielded butter of a good quality, and not perceptibly inferior to the former.

"In the third experiment, butter of a good quality was obtained, but of an inferior consistency.

"The fourth experiment produced soft and spongy butter.

"The butter produced in the fifth experiment was decidedly inferior in every respect to any of the former specimens."

Number.	Date.	Heat of cream	Scotch pints of cream.	Deg's of heat when butter came.	Quantity of butter, 16 oz. to the pound.	Time of churning.	W't of cream.	Heat of air at 8 P. M.
1	Jun. 13	56°	16	60°	16lbs. 8oz.	1½ hours.	4 to pint.	56°
2	20	52	16	56	16lbs.	2 hours.	do	52
3	24	52	16	56	16lbs.	2 hours.	do	52
4	July 12	63	16	67	15lbs. 8oz.	30 min.	3 to 14	70
5	Oct. 20	50	16	53½	15lbs. 12oz.	3 hours.	4 1	50
6	Aug 20	53½	16	57½	16lbs. 5oz.	1h. 15m.	4 lbs.	

No. 1, shows the greatest quantity of butter produced by the above heats.

No. 2, the best quality of the butter.

No. 3, the fine flavor and quality of this butter could not be surpassed.

No. 4, the quality soft, white and milky.

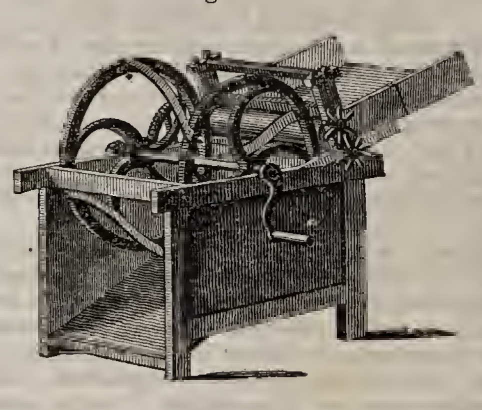
No. 5, quality injured by long churning.

No. 6, quality most excellent, high in colour and flavor, and solid as wax.

From the experiments, as shown in both tables, it would appear, that the proper temperature at which to commence churning butter, is from 50 to 55°, and that at no time in the operation ought it to exceed 65° or fall below 50°.

THE COLUMBIAN STRAW CUTTER,

Fig. 44.



Being recommended for its durability, is described as follows:—Three knives are placed diagonally on two wheels, two feet in diameter, and attached thereto by screws. As these wheels revolve, the knives pass the bed shear. Being graduated by these screws, they can be set so perfectly to the shear, that not a single straw can pass uncut. It receives a layer of hay or straw, eighteen inches in width, and of good thickness, perfectly to the cutting point, feeding itself by means of a couple of small rollers.

These machines can be seen at W. Thorburn's Agricultural Repository, corner of North Market-street and Maiden-lane, or at the factory in Syracuse.

STOCK, IMPLEMENTS AND SEEDS.

☞ To facilitate the wishes of our customers, who are desirous of purchasing choice live stock, implements, seeds, &c. we will receive, if sent us free of charge, and enter in a book of reference in our office, from those who have these for sale, memoranda of cattle, sheep, seeds or implements, the owner's name, residence, price, &c. As a compensation to the clerk, for making the entries and answering inquiries, a charge of twenty-five cents will be required for each entry. The advertising sheet which we shall publish in February, will afford an excellent opportunity of notifying the public of these matters—as our edition is 18,000, and our circulation extends into every state and territory of the Union, and into the Canadas.

☞ We beg to remind those who are in arrear for small balances, that these arrears, though individually trivial, are great in number, and important to us—that their aggregate amount probably exceeds the profits of the establishment. A moment's reflection will satisfy any one, that we cannot, if we would, compel payment, from persons scattered over the whole union—and we do not like to be discourteous to those who *promise* fair. The Cultivator was established for the public good, and we ask for the co-operation of the friends of improvement in rendering it so. All amounts sent us, for the convenience of transmission, beyond what is due, will be faithfully placed to the credit of the sender on the next volume.

TO CORRESPONDENTS.

"A Watervliet Farmer" cannot reconcile two apparently contradictory quotations which he makes from pages 94 and 101 of the Cultivator, in regard to the application of lime. The first quotation is from Davy, in which he disapproves of the mixing of quicklime with manure. The other is from M. Puvis, in which he recommends the using at the same time lime and mould, and alimentary manure. The seeming contradiction may be reconciled by referring to what precedes the last quotation. M. Puvis recommends a compost of eight parts of mould to one of lime, *to be made in advance*, perhaps three or six months, to be used for autumn sowing. The quantity of lime being only 11½ per acre, and mixed with eight times its volume of mould, must loose its causticity and become carbonate of lime, ere it comes in contact with the manure in autumn. Or if applied in conjunction, in compost recently made, the small portion of lime might not sensibly injure the manure.

Our reply to some dozen or fifteen queries propounded to us by *Harvey Birch*, whose letter bears a North Carolina post mark, must be brief, because a physician cannot well prescribe for a patient until he sees him, or knows his disorder. Mr. Birch occupies a diseased, or worn out farm, which he says may be called a loam, varying from yellow to blackish-brown, and he wishes to be informed of the efficacy of leached ashes, river sand and the sweepings of a fulling mill. Drawn or leached ashes do not afford vegetable food.—They sometimes improve the mechanical texture of soils, and serve as mordants, like carbonate of lime and marl, to fix other manures in the soil, and are beneficially applied to soils which are improved by calcareous earths. Drawn ashes may be applied at the rate of 50 to 200 bushels per acre, according to the deficiency of calcareous earth in the soil—the greater this deficiency, the greater should be the dressing. They may be harrowed in, and, like calcareous earths, are beneficial to the wheat crop. Their value is not impaired by long exposure. Sand improves a stiff soil, but not a light one, and imparts no fertility, except by the organic matter which it may contain. The sweepings of the fulling mill are a rich manure, in proportion to the quantity of wool and oil, or grease, which they contain. From 20 to 40 bushels per acre may produce a good effect. All decidious trees and shrubs, may be transplanted at any time after the leaves have been killed by frost in autumn, and before they put forth in the spring. Remove suckers of fruit trees at the same season. Roots are necessary to their growth. To kill the stumps of trees, cut their sprouts often, particularly in August. Calcaleous earth may be discovered by acids; silex and clay may be determined by the eye, the hand, or by rubbing upon glass: the first will effervesce, the second will scratch the glass. The best season to cut the timber and brush on what the yankees call a fallow, with a view to clearing the land, is when the foliage is fully out. If the object is timber or fuel, the cutting should be made when the foliage is off.

BEEF, PORK, BUTTER, LARD AND HAY,

Constitute heavy items of export from our state. Their character, and consequent price, at home and abroad, depend much upon the manner in which they are put up. The statute has imposed statutory regulations, which it is important that every dealer in those articles should be acquainted with. We therefore copy from Gordon's Gazetteer of New-York, an abstract of the laws prescribing the modes of putting up these articles for foreign market.

OF BEEF AND PORK.

1. No beef or pork may be exported or shipped for exportation, unless previously inspected, pickled and branded by a duly qualified inspector according to law; except, that to the Canadas by way of the lakes or river St. Lawrence and that brought into this state from any of the United States, and packed and branded agreeably to the laws of the state whence brought; and except beef put up by a licensed butcher in barrels, half barrels, tubs or kegs for ship stores, or in kegs or tubs for exportation if put up by the butcher killing the same, with his name and the weight contained branded on the head of each such package.

He who ships or attempts to ship beef or pork contrary to the foregoing provisions, forfeits 15 dollars for every barrel and half barrel.

2. Each inspector, before entering on office, gives bond with one or more sureties to the state, approved by, and filed with, the clerk of his county, in the sum of $2000, conditioned for the faithful performance of his duties; and provides sufficient store or yard for such beef and pork as may be brought for inspection, in some convenient place, without charge, if the inspected beef or pork be removed within three days after notice given to the owner or agent of repackage.

Barrels in which beef or pork is repacked are of seasoned white oak or white ash, free from every defect, measuring 17½ inches between the chines, and 28 inches long; hooped with 12 hickory, white oak or other substantial hoops, and if ash staves, with 14 hoops at least; the heads not less than three-fourths of an inch thick, and staves on each edge and at the bilge, not less than half an inch thick—the hoops well set and driven—branded on the bilge, with at least the initials of the cooper's name. The half barrels in proportion to and of like materials as the barrels, and containing not less than 15 nor more than 16 gallons. The barrel contains 200, and the half barrel 100 lbs.

When repacked in and exported from Suffolk, Kings or Queens counties, the barrels may be as nearly straight as possible, of seasoned red oak of the growth of such counties respectively, free from sap or other defect, and otherwise made as above directed, and may be exported from the city of New-York without re-examination. If beef or pork be repacked, it is pickled with saturated brine, and when in larger casks than above prescribed, is condemned, or the casks are filled up by the inspector with good meat, at the election and expense of the owner.

The inspector examines and sorts all beef and pork he inspects, and brands none not well fatted, and packed in proper casks.

3. Three qualities of pork are branded; the first consists of the sides of fat hogs, exclusively, and is branded "Mess Pork;" the second, of which there is in a barrel, not more than three shoulders, having the legs cut off at the knee joint, nor more than 24 lbs. of heads without ears, and the snouts cut off to the opening of the jaws, and the brains and bloody gristle taken away, and the remainder made up of side, neck and tail pieces, is branded "Prime Pork." The third, of which there is not in a barrel more than thirty pounds of head, and four shoulders, and the remainder being merchantable pork, is branded "Cargo Pork." This pork so repacked is cut from the backbone to the belly in pieces about five inches wide, weighing not less than four pounds; otherwise the barrols aro not branded as merchantable.

For every barrel branded there is required 16 quarts of salt, equal in weight to Turks Island salt, and a strong new pickle; but if pork be inspected and branded when fresh, not less than 24 quarts of such salt, exclusive of such pickle is requisite.

Thin, soft, rusty, meazly or tainted pork is never branded, but the inspector marks the head of the barrel with paint, and his name, which designates its true character; and the altering his mark or brand, or adding thereto, contrary to law, is punishable for every barrel so altered or shipped, or attempted to be shipped, by a fine of 10 dollars, to the use of the person suing therefor.

No beef is repacked for exportation unless of fat cattle, not under three years old, in pieces as square as may be, not exceeding 12 nor under 4 lbs. weight. Such beef is divided into four sorts: "Extra Mess," consisting of the most choice pieces of the fattest cattle, weighing not less than 600 lbs. exclusive of hide and tallow. "Mess Beef," of the choice pieces of large and fat cattle, without hocks, shanks, clods or necks, and may contain two choice rounds not exceeding 10 lbs. each. "Prime Beef," of pieces of good fat cattle, containing in a barrel not more than one half neck, two shanks with the hocks cut off the hind legs at the smallest place above the joint. "Cargo Beef," of such cattle, with a proportion of good pieces, not more than one half of a neck, three shanks with the hocks cut off as above, in a barrel, and to be otherwise merchantable. And these names are respectively branded upon casks containing the respective qualities, by the inspector.

Into every barrel of beef inspected and repacked, there is put not less than 20 quarts of salt, 4 oz. of saltpetre, and a new strong pickle. All bloody and neck pieces offered for inspection, before put up are properly cleansed.

On the head of each cask of merchantable beef or pork, are branded the weight of its contents, with the initial of the christian name and the surname at full length of the inspector, or both at full length, with the words "New-York City," if inspected therein; and the name of the county and the words "State of New-York," if inspected in any other county.

The inspector is entitled to 15 cents for each barrel, 10 cents for each half, repacked and inspected, 10 cents for flagging, pegging, nailing, salting and pickling; 3 cents for each hoop put on; payable before the inspected cask is taken from his storage.

No inspector may be concerned in the purchase of cattle or hogs, with intention to pack them for sale, or in any manner partake of the profit or loss of any beef or pork, when intended for packing, under penalty of 500 dollars for each offence, nor may he inspect or brand any cask out of his proper district; nor in any case lend or hire his brands, under penalty of 25 dollars for each barrel so inspected or branded.

The storage of the inspector of the city of New-York must be on the margin of the East or North river; and he may not inspect or repack at any other place, under penalty of $15 for every barrel. Any person other than an inspector, branding such cask, forfeits a like sum.

No dealer in beef or pork, may suffer it, after inspection, to be exposed to the heat of the sun, or inclement weather, longer than 12 hours, under penalty of five dollars for each offence.

Any person intermixing, taking out, or shifting beef or pork of casks inspected, or putting into such casks other beef or pork, for sale or exportation, or altering or changing the brand or mark of the inspector, forfeits $25 for each cask.

Every person slaughtering cattle or hogs to be barrelled for inspection, contrary to law, forfeits $25 for every head.

Any person selling or disposing of empty barrels, or the heads of barrels, that have contained beef or pork, without having first obliterated the inspector's brands or marks, forfeits five dollars for each barrel or head, to the use of the person suing therefor.

REGULATIONS RELATIVE TO THE PACKAGE OF BUTTER, LARD AND HAY.

The firkin in which butter or lard is packed, for sale, has the true weight thereof stamped or marked in a legible and durable manner, on one of the staves or heads, with the initials of the packer, which is, on every sale, deemed the tare. The offering for sale of any firkin of butter or lard not so marked, is punishable by a fine of three dollars; and the putting any false mark on such firkin, or selling, or offering to sell any butter or lard in any firkin known to be falsely marked, by a fine of five dollars. Such fines to be applied to the use of the city, town, or village, in which the offence is committed, and recoverable in the name of any officer appointed thereby to sue therefor.

Every person putting up and pressing any bundle of hay for market, marks or brands in a legible manner the initials of his christian, and his full surname, and the name of the town in which he resides, on some board or wood attached to the bundle; and may not put or conceal in any such bundle, any wet or damaged hay, or other materials or hay of inferior quality to that which plainly appears on the outside, under penalty of prosecution by the person aggrieved; and if the court, before whom the suit is brought, be satisfied that any of the preceding provisions has been violated, it renders judgment of one dollar for the plaintiff, with such damages as he has suffered thereby, and costs: but if the court be satisfied that no such violation has been committed, the costs are awarded against the plaintiff.

Such hay may be sold with or without inspection or deduction for tare, and by the weights, as marked, or any other standard weight, as agreed between buyer and seller.

No person may receive any fees or compensation for inspecting pressed or other hay where he is the purchaser, for himself, or as agent for any other person.

CORRESPONDENCE.

CHESS OR CHEAT.

Our correspondents, to-day, have fully verified our remark, that the question as to the transmutation of wheat into chess is well settled, in the opinions of the advocates upon both sides—both pertinaciously claiming to be right. Since we wrote our article upon the subject, we have made the subject of some enquiry, and have heard various statements pro and con, sufficient to make a strong case on either side. These it is not worth while to detail; and we content ourselves with remarking, that the only practical benefit likely to grow out of the controversy, is a general admission, that as chess *will* produce chess, the less of it that is sown, the less it is likely to abound in the crop—and that consequently good farmers will be admonished to sow none but perfectly clean seed. We fear that a further continuance of the controversy, will be neither otherwise profitable, nor pleasant, to the mass of our readers, and therefore would respectfully ask leave of our correspondents to bid adieu to it.

JUDGE BUEL—In the Cultivator for the present month, I have read an editorial on the subject of chess, which leans to the doctrine of the mutability of wheat. As all controversy is deprecated, permit me to submit one or two facts in opposition to those adduced in the article in question. Some eight or ten years ago, my farm became very much infested with this weed—which proceeded probably from negligence—insomuch that I was even unable to save grass seeds that were clear of it. I determined, if possible, to extirpate it; bought my grass seed in order to have that which was pure; and caused my seed wheat to be thoroughly cleansed of all foreign matter. I did not depend upon those in my employment to judge for me, as to when it was sufficiently cleansed. I therefore went to work *knowingly*—and I had the pleasure of seeing the quantity of cheat diminish at every succeeding harvest. The consequence is, that for some years past, out of the annual product of about fifty acres, I have not perhaps reaped a peck of cheat. My facts however, have reference to the last and present years, about which I will be more particular in my statement. It is well known that the two past winters have been very disastrous to the wheat crop. That of '34–'35 caused the destruction of probably three fourths of the young plants, many of which however did not finally perish until the spring.—Some of the plants therefore must necessarily have been "diseased;" but notwithstanding this and all other causes, proximate or remote, I was unable to find a single grain of cheat when my crop was threshed out. Most of my neighbors crops on the contrary, abounded in it; and it was, as usual, regarded as degenerate wheat. In regard to the present year, the wheat had not only to contend against the effects of the winter; but it had to withstand the ravages of the hessian fly, which was more numerous in the spring than I have ever before known. When it was time for the ears to be developed, every person was surprised to see such a quantity of cheat; and some were amazed to behold their fields exhibit scarcely any thing else. Under these circumstances, and when a large number of the stools did not have strength enough to shoot, (being consequently grievously "diseased") I was not able to find a *single plant* of cheat during a search over a considerable portion of my field. Now I venture to ask, why my own field, which was no better cultivated than those of my neighbors, and which also contained "springy places," should have been more exempt than theirs from this pest?

After my own experience, I cannot but believe that those who detail facts to prove the transmutation of wheat, state them with much looseness. Do they *know* that the seed was pure, and that there was no filth in the ground when it was prepared? Unless their premises are cautiously laid, their deductions are entitled to no consideration, even from themselves. From what I know of those whom I am acquainted with, and judging of others by them, I am certain they are not cognizant of all the circumstances on which this result should be made to depend. Every fact detailed in the Cultivator is of this character, with one or two exceptions—the most important of which is that G. W. Featherstonhaugh was in possession of a plant of cheat "with the skin of a kernel of wheat so attached to the roots, as to satisfy him and others, and amongst others, the late President Madison, who examined it, that in this particular instance a kernel of wheat had produced a plant bearing heads of cheat." Now is it not matter of astonishment that there should have been only a single instance of the kind ever brought to ight, when if the doctrine be true, millions of similar changes occur every year? As only one case however has been produced, the conviction is irresistible that the grain of wheat was not the parent, but that its own offspring might very probably have perished—for "disease" oftentimes terminates in death also—after the roots of the two plants had become interwoven. Even they who believed in transmutation, should not rely upon a solitary case, and that too of such a questionable character, to unsettle a fundamental law of nature; but should be even ready and willing to produce others without number. But I maintain that it was impossible in this instance to establish the remains of the kernel to have been those of a grain of wheat. The examination must have been made at least five months after the act of germination—for the cheat had produced heads—and in such a state of decay the resemblance could have been little better than fanciful. During the past spring, and in particular reference to this "fact," I made several careful searches, but could never discover the vestige of a kernel in so advanced a stage of the growth.

It is certainly with no design to draw the editor into controversy that I respectfully submit, whether he who occupies so exalted a station in the agricultural community, and to whom we habitually look for correct information, should not feel himself bound to investigate and to explain how this important change takes place? Did he ever see a plant which he knew to be wheat when it vegetated, and cheat when it matured? He is a botanist, and could at all times readily distinguish between them. Ought he to remain satisfied, because "practical farmers," and some of them "philosophers" too, consider wheat to be mutable? Philosophy has believed in other things apparently as absurd, and has itself exhibited many strange mutations. If cheat be the product of diseased wheat, by what rational process is it that a feeble individual can be transformed into one of vigorous constitution? Every body knows that cheat will thrive well in all situations, under the most slovenly culture, and even under the pressure of the hoof. In the ordinary operations of nature, the offspring inherits no more vital energy than the parent was endowed with; but according to this doctrine, we must believe in a resurrection—not of the living from the dead—but one palpable and corporeal, in which health and vigor are derived from weakness and disease. It is moreover incumbent on those who contend for such a radical change in one department of nature, to show that a like transformation takes place in respect to other productions, animal as well as vegetable.

In conclusion, I would suggest to the advocates of transmutation that as the *onus probandi* rests upon them, they should take the pains—if that would not be out of their element—to select a number of *young* plants of wheat with the kernel attached to the roots, re-set them in a place of security, and subject them to such treatment as may promote the attainment of their object. Let them then make a candid statement of the result, and their "facts" will be entitled to respect and consideration. T. S. P.

Goochland County, Virginia.

CHESS OR CHEAT.

Mr. Editor—There have some circumstances, in regard to the changes in grain, come under my observation, which to me are conclusive evidence (however contrary it may be to acknowledged principles,) that cheat or chess not only can be produced from wheat, but from rye, barley, and oats—and in confirmation of which, I will relate the circumstances: I have in three instances in this country sown barley, (and that which I have sown for the two last years was perfectly clean seed) which has produced me an almost entire crop of cheat. I have not in the two last years had one head of barley in a thousand, and in the other instance, (about eight years since) it was an entire crop of cheat. Last year there was but very little barley in this part of the country better than mine. If this cheat has not originated from barley, what has it come from—for rye, it is as common to find cheat in it in this country as in wheat—but in oats, I have seen but a few who have observed it; what I have seen, and what is known to my neighbors, is this: In the spring of the year 1825, I turned up a piece of sod, about eight acres, which I sowed in oats, except about one acre in one corner of the field, which was sowed with flax. The oats and flax were gathered when ripe, and the field was kept shut up with but very little pasturing, until the next summer, when the whole field (except that part which had flax on, was covered with *rye* and *cheat*—on the flax ground there was nothing but weeds—in the rye there was as great a variety as from the seed of an apple or a potatoe; some grains were long, some were short, some black, and some as white as wheat—these are the facts. How the grain could have come there, except from the oats, is beyond my comprehension; if it had come from the cattle, it would have been dropped alike on the whole field; besides my cattle had not been pastured before where they could have gotten it. Rye, barley, wheat, and oats, as far as my observation extends, all produce cheat or chess, and that precisely alike in grain and stalk. If this is a fact which the experience of farmers has proved in opposition to an accepted principle of natural law, (which may be wrong) so far as wheat, rye, and barley are concerned. It proves to me that these grains, in all their varieties of summer and winter, bearded and unbearded, are originally from the same *parent stock*—changed only by cultivation and change of climate. My faith to me is a new one, and may be esteemed ridiculous; but it is at least worthy of an investigation.

I have in several instances since the above, observed rye in my clover fields, sown upon oats, but the evidence of its originating from oats, was not alike satisfactory.

EGBERT T. SMITH.

Franklin, Warren, Ohio, Sept. 15, 1836.

CHESS OR CHEAT.

Mr. Buel—I have long been desirous to see some of your correspondents, calling the attention of farmers to the importance of sowing clean seed. This subject I conceive to be peculiarly important to wheat growers.

It is certainly unfortunate that so many of this class manifest so much indifference on this subject. It is still more unfortunate that they should adopt any opinions which are calculated to produce and perpetuate this indifference. Who, for instance, that deems it uncertain whether he reap wheat or chess, when wheat only is sown, will be very careful to saperate chess from his seed? Or who, that believes that chess will not grow from the seed, will be careful not to sow it? The last of these opinions prevails to some extent.—The first is very generally adopted; at least, so far as my acquaintance extends. Both in my view are equally erroneous. I am aware that I stand on disputed ground, when I say that wheat is not converted into chess by the frosts of winter, nor by any other cause. But this is only saying in other words, that what a man sows that shall he also reap.

It would most probably be only a waste of my time (had I leisure to devote to the object) to attempt to disprove the opinion that wheat turns to chess. I am not vain enough to suppose that any reasons or facts that I can produce, would avail to overthrow an opinion which, in the views of those who entertain it, is founded on observation and experience. But let me respectfully say to them, that they may be mistaken. Their observations *may* not have been sufficiently *close* to save them from deception. It may after all, be a fact, that the quantity of chess raised, (other things being equal) is in exact proportion to the quantity of seed sown. If it is so, then it may be practicable to eradicate this foul seed from our wheat. It is certainly desirable, and the prospect of accomplishing the object, in my view, will fully justify an effort.

In hopes that some may be induced to make the experiment, I would suggest the following method: Let the ground intended for wheat be thoroughly cultivated with the hoe. A spring crop may intervene, provided no manure be carried on from the yard. The next thing, *which is absolutely essential*, is to separate the chess entirely from the wheat to be sown. This I think may be done with one of Gilbert's fanning mills, made at Lyons, Wayne county, N. Y. Let this course be pursued for a number of years, and if chess is not wholly exterminated, there can be no doubt but the labor will be fully compensated in the improved quality of the wheat.

Should you deem these suggestions worthy a place in the Cultivator, you are at liberty to insert them.

JOHN I. WILSON.

Mentz, Cayuga County, September 6, 1836.

P. S. Since writing the above, the Cultivator for the present month has come to hand, containing your reply to the enquiries of Messrs. Cahoon & Wilbur, relative to the origin of chess, &c,—Many of the facts mentioned, as inclining you to adopt the opinion of those who think that wheat is transformed into chess may be satisfactorily accounted for, without adopting such an opinion; others of them involve difficulties not so easily explained; while others, perhaps, may be only mistakes, and not facts. I have not time, at present, to go into an examination of them and to present my views, nor should I deem it courteous to do so. It was no part of my design to promote a controversy on this disputed question. I certainly have no desire to become a party to such controversy. There can be no doubt that it would be not only safe but profitable, for farmers, in all their *practical* operations, to regard the opinion in question as erroneous. To induce them to do so, was the sole object of this communication. I may hereafter state some facts as a further inducement for them to adopt this course, and as reasons why I have adopted the opinion which I hold. If I am in error, I will still rejoice in the reflection that, in this instance, it is more safe than the truth. Respectfully, yours,

September 9th. J. I. WILSON.

CLOVER, GRAPES, AND RUTA BAGA, IN NORTH CAROLINA.

Sir—Time at present permits me to remark merely, that although the outlines of farming operations in the South are the same as in the North, yet there are peculiarities requiring strict attention, in order to success here. For instance, to uniformly succeed with clover, I find it necessary to sow here the last of September or first of October, so as to avoid on the one hand, the heat or hot sun of summer, and on the other, the freezes of winter. The scorching heat of the summer's sun often destroys clover sowed in the spring. My manner of sowing is this: I plough the ground, (usually after taking off an early crop of corn) and having harrowed in my wheat, sow the clover seed immediately, or before any rain may fall, and leave it to be washed in by a succeeding rain. The success of plaster I find is more uncertain here than in the North. I have tried it however, successfully, on clover and cotton—but never with any perceptible effect on corn.

I would briefly state, as to grape culture, that I have not succeeded with foreign kinds of vines, nor foreign manner of culture. But beyond my expectation, with native plants, or those obtained from various parts of the Union, and of established reputation, and some natives of this state and county. After planting, I keep the ground well stirred around with a cultivated crop; such as the cabbage, ruta baga, and mangold wurtzel, and trim and pinch off all laterals, to train the vine high and in preparation for eventual scaffolding.—By this plan I have vines of last years' planting with 40 or 50 fine clusters of grapes.

I would take the liberty to suggest, that some of the views on the turnip culture, expressed in the number of your periodical coming to this office, are not altogether correct, at least so far as my experience, and that of my neighbors prove. From repeated experiments here, I find that the ruta baga, to succeed well, must be planted generally before the middle of July. The crop I raised about three years since, as stated in the American Farmer, producing more than 600 bushels to the acre, was planted the first part of July. Other turnips are commonly sowed here towards the last of August. Most of my ruta bagas left out the two winters past, were destroyed by the severity of the weather. So were common turnips in these parts. Previously ruta bagas stood out during the winter without injury. Yours, &c. with great respect,

SIDNEY WELLER.

Brinkleyville, Halifax County, N. C. Sept. 1st. 1836.

STRAW CUTTER.

Dear Sir—No agricultural implement promises more to the farmer than the Straw Cutter, both as it respects the economy of fodder and the condition of farm stock. And it is gratifying that the improvements in this article are already so complete. That we can save at least one third of the food of our horses, cattle and sheep, in the use of the straw cutter, is an important consideration; and is a reason most conclusive why this implement should be found upon the premises of every farmer. And I think that the day is not far distant, when it will be considered as important an appendage to the farm as the plough or the harrow. Its great utility needs but to be understood, and the cost of the article will be no barrier to its general use.

These remarks have been suggested by reading the extra Cultivator for August, containing a pictorial representation of Green's Patent Straw Cutter, certificates, recommendations, &c., of that implement. That this is the most simple and efficient machine of the kind that has yet been *offered to the public*, we do not feel disposed to deny; but that "it is just what we farmers want," is saying more than I am disposed, after having witnessed its operation, to admit. To the doctrine of your neighbor of the "Three Hills Farm," that *long* cut feed is preferable to feed cut *short*, I must beg leave to dissent, as opposed, in my judgment to common sense, and the more general experience of those who have been in the habit of using cut feed. If feed is better *long* than *short*, why cut it at all? One of the principal objects of the Straw Cutter, is to assist the animal to perform the operation of mastication. Now it appears perfectly reasonable to my mind, that the *shorter* the food the *less* the quantity that will find its way into the stomach, without undergoing this process. Common sense on this subject would seem to inculcate the sentiment that the *shorter the food the better*. And besides, it is generally admitted that animals consume it more readily when short, and that there is far less waste.

I apprehend, that to a vast majority of our observing, intelligent farmers, it will be no recommendation to Green's Straw Cutter, to tell them that it cuts from one to one and a half inches long, and so far as I have heard an expression of opinion on this subject, it has been that the feed cut by this implement was not sufficiently short, and it will, I apprehend, be found that the doctrine and practice of the Three Hills Farmer, and of the Boston Livery Stable, in this matter, will not be the doctrine and practice of the great majority of farmers, when this subject is more fully understood.*

These remarks are not made from any design to injure the enterprizing individuals at Lockport, who are manufacturing the article. With them I have no controversy. But when the opinions of individuals find their way into the public prints, it is a right we all enjoy, who entertain different views, to controvert and oppose them.

For the information of all interested in this subject, I would remark that another implement of the kind will soon be offered to the public, which in my opinion is far superior to any thing of the kind yet produced. It is a new invention, by an Englishman—and will be called Firth's Patent Straw Cutter. It is just what we want—a good, substantial, neat, and well made article. It is so constructed that it may, by simply turning a screw, be set to cut feed either *long* or *short*, from one quarter to an inch and a quarter, to suit the taste of individuals. It has two knives, and these are easily taken off when they require sharpening, and the machine will not be subject to get out of repair. I make these remarks, not because I have any personal ends to serve, but in justice to a worthy individual, who will have contributed, when his machine is once introduced, an important benefit to the farming public.

Respectfully yours, &c. JOHN FREY.

Palatine Bridge, 14th Sept. 1836.

EVILS RESULTING FROM BAD ROADS.

Michigan, September, 1836.

J. Buel, Esq.—Sir—One of your correspondents, in a late number of the Cultivator, glances at the subject of roads. His object seemed rather to hint at the importance of bestowing more thought upon their structure, than to suggest any plan: but what was there said, in connexion with the tremenduous labor of traversing, as I was endeavoring to do when I saw the article alluded to, some of the roads in this section of country, brought the subject of roads and road making, forcibly to my mind. Whoever has spent much time in a new country, and taken the trouble to trace the perplexities and privations there to be met, to their true causes, will agree I think, that *at least four fifths of these privations are chargeable to the state of the highways.* In this estimate I include *moral*, as well as *physical*, inconveniencies—and it is this latter consideration, which gives importance to the fact. Pass your eye over the log houses in Michigan as she is, and western New-York as she was twenty-five years ago. Observe the spirit and resolution with which the sturdy emigrant *enters* that cottage, and see the neatness and good order that is disclosed in every nook and corner that is under the supervision of his wife—look at the children:—tidy, well dressed and comfortable. Let a year or two pass, and look again. You see the man with his improvements extended—his stock increased, and his property appreciating: but when he thinks of the *road* he is obliged to traverse, for various necessary purposes, you see his countenance fall, and his heart sickens within him. Look at his wagon—his harness—his bars—his oxen—his horses: mud from top to bottom;—look at the man himself—his boots—his pantaloons;—covered with mud. He dreads, and well may he dread, a four mile journey with his team, for any purpose, and avoids it as long as possible. The interior of his house shows, that its overseer has somewhat faltered. Why should she not? *Who sees* the fine order in which she *had been* accustomed to keep every part of her dominions? Few and far between are the observers of this neatness: and its cost, in labor, is doubled, aye quadrupled upon her. See the children, who before looked so cheerly and so well:—a change has come over every think around the dwelling. Suppose, now, that when this man and his little family, landed at their habitation, *every road in the country had been as good as the McAdam road from Albany to Troy:*—what would be the appearance of things in and about that house? Vastly *above* the starting point, in every respect. And why? Simply because the man, with his wife, and his children, would have journeyed, and mingled and associated, and formed intimacies with others above, as well as below, themselves in respect to comforts.—A constant and living intercourse, the ground work of the difference which is perceived between town and country, between sparse and dense populations, between countries where you can *move*, and countries where you are clogged, hampered, fettered, would have been kept up,—and the *moral* bearing of good roads would receive, in this single instance, an illustration so palpable and so powerful, that the impression would never wear off.

---

* Our friend Frey is probably not aware, that Green's Straw Cutter is made with 24 as well as with 12 knives, and that the former cuts fodder half an inch long only.—*Cond.*

Stop social intercourse, and we should assume the moccasin and the blanket, sooner than is generally supposed;—the slighest *check*, tends to the same point.

But I am losing sight of the object that induced me to trouble you; which was to say, that in the senate of your state, in 1831 or 1832, a report was made by the committee on roads, accompanied by a bill, authorising towns, at their annual meetings, to determine by vote whether their highway taxes should be paid, within certain prescribed limits, in money; and prescribing the manner in which the money, if the town should determine to raise it, should be applied. I do not know the details of this bill, and am not certain that a copy of it can be found on the files; but I have heard it spoken of favorably, and I think it probable some useful hints might be found in the bill and report, if any one having leisure, should have also the industry to look them up. The bill was not acted on—although Gov. Throop had strongly recommended the subject, in his message, to legislative attention. Neither the report nor the bill may be worth republishing entire; but I should be glad if you could get sight of them, so as to judge whether a publication of parts might not draw out the views of some who have reflected on the *importance*, the *condition*, and the best way *to improve* the highways of your state, and others. In timbered land, the most valuable improvement, in proportion to its cost, that I could suggest, would be to *cut out at least ten or twelve rods in breadth*, fifteen would be better, *along the line of every road.* The effect of a rapid and a tardy evaporation is seen, whenever we leave open land for timbered land, or the reverse. ——— ———.

THE GRUB WORM.

Mr. Buel—Sir—I saw in the October number of the Cultivator, some remarks on the cut worm and the Hessian fly. If you think the following short narrative respecting the cut worm, worth publishing, it is at your service. As I kept no record, I relate from memory.

When I was a young man I tried the following experiment: I took three large cut worms, and put them into a tin box, with some earth for them to bury themselves in. Once or twice I put in a few fresh leaves of pig-weed—they ate but little. I waited till I thought they had changed into the chrysolite state. On examining them, I found that two of them had died before they changed, the other was perfectly changed, and of a dark, reddish brown color. In due time it passed to the second change, and came forth a darkish grey moth. I then began to look for some of the same kind. I soon found great numbers of them in the windows in the evening, and have since found many of them concealed between boards, in stone heaps, &c. I thought it a bad rule that would not work both ways. Accordingly I put two moths, which I caught in the window, into a paper box, with a few pieces of loose paper for them to lay their eggs upon. I a few daws the papers were covered with eggs. After destroying the moths, I put the box away till the following spring. Some time in March I opened the box, and found the eggs all hatched—the worms had crawled about, and for want of nourishment were all dead. I examined them through a microscope, and found them cut worms indeed, in miniature. Thus the natural history of the cut worm was settled, in my own mind. The eggs are deposited about mid-summer, and a little after; these eggs soon hatch, and the young worms feed during the warm weather of autumn. In the spring they come forth with voracious appetites, and feed till they get their growth, and then in the course of a few weeks pass through both changes into a moth. I have observed two varieties of the cut worm; alike in shape and nearly in size, when full grown, but different in color and habit. Those I experimented with were the common black kind, which always eat off the plants above the surface of the ground. The other kind are lighter colored, almost transparent, with a red head, and eat off the young corn and other plants below the surface of the ground. This last kind generally abound in old sward.

A WATERVLIET FARMER.

Watervliet, October 4, 1836.

EXTRACTS.

MARL.—*(Continued from page 135.)*

EARTH-MARL.

The former, though in substance, as we have already seen, sometimes principally formed of sand, is yet, in most cases, chiefly composed of clay, and of the carbonate of lime, intimately combined, but mixed in very different proportions, by which its properties are necessarily varied. It acts as manure physically, or substantially, through the effect of the clay, in rendering soils tenacious; and chemically, by the operation of lime, in the manner which has been explained in treating of that fossil These two substances are so completely amalgamated, that it is not possible, either by the eye, or even by a microscope, to distinguish the constituent particles of the one or of the other; the fact can, therefore, be only ascertained by chemical analysis, and the means which nature has employed in their combination is yet unknown; for although it might be supposed that mixtures of clay and lime would produce the same effect as marl, yet they will not fall to powder in the same manner when exposed to air; and it contains some fertilizing qualities with the powers of which we are unacquainted. Thus, in the improvement of Chat Moss, in Lancashire, if a piece of marl was suffered to lie a few months upon the ground, it was found, on raising it up, that a considerable quantity of the moss adhered to it; and if the intermediate substance was examined, it appeared to be a mixture of marl and peat, formed into a mucilaginous mass of a dark colour, and as soft as soap.

Although it is very generally thought that extreme accuracy in philosophical experiments is useless in the practice of agriculture, yet it is particularly necessary to ascertain the precise difference between these modes of action; for, of course, either one or the other prevails, according to the greater or the less quantity of clay of which the marl is composed. Thus, to produce the first named, or physical effect, a much larger amount must be laid upon the land than when the second is the object; for the clay can only be advantageously employed in that view upon soils that are too light; and consequently the marl must be laid in proportionate abundance. or it will not improve the condition of the ground; whilst a clayey soil would, on the contrary, lose some of its good qualities by the addition of marl, after the effects of the lime were exhausted. The intimate combination of these two substances in the composition of marl affords it, however, this advantage—that it divides, and falls to powder, with greater ease than can be effected by any artificial mixture, and therefore unites more readily with the soil.

On the other hand, if the calcareous matter in the marl be combined with sand instead of clay, or that there are, as in many instances, veins of calcareous sand intermixed, then it suits a clayey soil. The proportion in which these substances are combined is, however, so different, that they often vary in the same vein, and it is generally found that the bottom part is more calcareous than the top. From 15 to 40 per cent is not unfrequently the portion of calcareous matter found in clay; that of a sandy nature generally contains a larger proportion.*

The stone marl of hilly countries is frequently still more abundant in calcareous substance; but it also, in many other places, contains such large quantities of extraneous matter, that it may be properly considered as belonging to the earthy species, and has, in some instances, been laid upon the land to the extent of 400 to 600 single horse cart-loads per acre, which heavy labor renders the use of lime more econimal, although carried from a greater distance, except in cases where the chief object is to loosen very stiff clays, on which it acts with considerable effect.

The origin of earth-marl is a subject of curious inquiry. It is an object, however, of only secondary importance to farmers; but we refer those who feel interested in it to an ingenious treatise, which may be found in the Ap-

---

* *Argilaceous marl* usually contains from 68 to 80 per cent of clay, and from 32 to 20 per cent of calcareous matter: but it has been found composed of 70 per cent of calcareous, and 8 to 10 of sand, with clear signs of some iron.

Siliceous marl very often contains above 75 per cent of sand, consequently chalk and sand are the predominent ingredients. Kirwan on Manures, p. 13.

The analysis made by Von Thaer, of a quantity dug out of pits at Oldenburgh, in Germany, showed it to contain in 100 parts

Of fine sand	36
Clay of a soapy kind	44
Mould	5
Carbonate of lime	14
Gypsum	1

—*Principes Raisonnés d'Agriculture,* 2de ed. tom. xi. p. 423.

pendix to Holland's Survey of Cheshire. Those kinds of which we are now treating are often found at the base of chalk hills, or in the valleys formed between them, and have probably arisen from the chalk which has been washed down by the rains, together with the vegetable and animal matter of various descriptions which collect and combine together; for, on analyzing them, they are found to contain clay, sand, loam, and chalk, and in proportion to the quantity of other substances with which they are combined, they are either saponaceous and clammy, or crumble if largely mixed with calx. Earthy marls are, however, found in beds of such distinct substance, that a body of sandy marl has been known with a regular bed of limestone under it, and a stratum of clay-marl under that; in which case it is evident that the clay at the bottom, if it was not the native soil, must have formerly formed some part of the hill towards its base. The colour of marl is thus occasioned by the nature of the mixtures of which it is composed; for pure calx, or chalk, being white, necessarily imparts a similar hue in proportion to the quantity of calcareous matter which it contains; while the red tinge so perceptible in much of the clay-marl is a strong evidence of the existence of iron. There is also a sort of clay which, from its soapiness, is often mistaken for marl, though differing essentially in its requisite properties. This earth appears to be impregnated with sulphur, and other mineral substances injurious to vegetation, which renders it expedient that farmers who are not already well acquainted with its nature should either use it at first cautiously, or have carefully analyzed by some competent chemist.

SHELL-MARL.

Shell-marl is usually of a blueish colour, soft to the touch, and somewhat resembling potter's earth; but when exposed to the air it crumbles, and falls into a powder, nearly in the same manner as lime does in slaking.

The nature of this marl is very different from those of earth or stone; for it contains both stimulant and fertilizing properties which do not belong to the former, and from its effects upon the soil it has been classed among animal manures, though it more properly resembles a compost formed of earth and lime, with animal and vegetable substances, for which reason it is justly considered preferable to the others. It exists at the bottom of most lakes, and under bogs and morasses, or other pieces of stagnant water which have been drained, and might, no doubt, be found in every place where water has originally rested; though, as it is usually under others layers of earth or peat, its depth below the surface is often too great to admit of its being searched for with advantage. Every farmer should, therefore, carefully examine the sides and bottoms of his ditches and ponds, for, by doing so, he may often find appearances of marl in places where it was not suspected, and large beds of the most valuable sort have been in that manner discovered, which might have remained unnoticed for years.

It is chiefly composed of those myriads of small shell-fish which, with other fry and insects, usually procreate wherever there are pools of water, and the remains of which have, in the course of past ages, been deposited along with sand and decayed vegetables, or other matter swept from eminences, or by the decomposition of aquatic plants. This process of alluvion has, in the lapse of time produced those masses of shell-marl which display the most striking effects when employed as manure; for the shells, when decomposed, are converted into lime of such purity, that some moss-marl, examined by Dr. Coventry, was found to contain 84 per cent of pure chalk—which is more than is generally possessed by the purest lime—and the mould formed of the other substances must be very rich.* It may, therefore, be converted into quick-lime, by burning, or it may be used in its natural state; but then it is not so minutely divisible, nor so soluble in water, and is of course, more tardy in its operation; its effects, however, continue longer, and it is apparent that, as it contains more calcareous matter than the common qualities of lime, it may be used in smaller quantities. When spread upon grass, or clover, it is found to promote the growth of the herbage, for it partakes of the nature of pounded limestone, and possessing none of the caustic properties of quick lime, it may be used without hazard as a top-dressing. It also occasions heavy tillage crops; and if the land be not over-cropped before it is returned to pasture, the turf is found to be closer, more plentiful, and sweeter than before; but on cold damp soils, which have been heavily worked, the crops of grain have proved later, and the corn lighter than on land which has been limed.

MARL PITS.

The common mode of searching for this, and every other kind of marl, is, by the boring-irons used in seeking coal, and other mineral substances. It may, however, be easily effected by any farmer who has reason to suspect its existence on his own land, by using a long pole, furnished with an iron auger fixed at its end; but if this does not reach the marl within about twenty feet below the surface, the sinking of pits, unless the quality be very superior, will seldom be found to answer the purpose. The pit is usually opened by digging a ditch of four to six feet broad, by twelve to twenty long, the surface earth being generally thrown on one side, and of the sub-soil, or virgin earth, on the other. The marl is then extracted in square pieces with a small cutting spade, either to its full depth, or to that to which it can be taken without danger; for care must be observed in preventing it from falling in, by which serious accidents have very frequently happened. The pit is then either so far filled up as it will allow, with the clay rubbish, or other earth of the sub-soil, covered by that of the surface; and if it be not of great depth, it may, with a little attention, be easily brought to a level with the rest of the field: if not, it is in other places formed into ponds; but in that case, or if left in open pits, the precaution should be observed, of either fencing them round, or sloping their sides, so as to guard against accidents.

In those places where marling is regularly carried on throughout the year, it is generally managed by persons who make it their sole business; but when the farmer's teams must be employed, it can be only done from the latter part of autumn until the commencement of the spring sowing, or during the intervals of other work, though it may be carted upon the land at all times which may be found convenient. The expense depends upon a great variety of circumstances, but chiefly upon the depth from which the marl is dug, and the distance to which it is to be carried. The nature of the surface-soil, and the charge of removing it—the tenacity of the marl, and the quantity of water with which it may be covered—all vary according to the locality: then the carriage, particularly of clay-marl, is so heavy, that unless it can be found nearly adjoining the farm, it will rarely pay the cost of removal; for the work is so severe that, even in the slack time of winter, the cattle will require better food than is usual at that season, and the wear and tear is also considerable. All weighty considerations, which, when compared with the tenure of the land, deserve mature consideration before the improvement be attempted.*

Tenants should, therefore, be cautious how they undertake it, unless backed either by the security of a long lease, or by entire confidence in the estimation of their landlord; for a very considerable period may elapse before it incorporates with the soil, and, consequently, before any benefit can be received from it. Of which, that able farmer Mr. Macro, of Suffolk, gives an instance, in 120 square yards having been laid upon some very poor soil at an expense that would have purchased the fee simple of the land; yet no visible improvement was effected in comparison with other ground which had not been marled, until very long afterwards, but then it evidently obtained an advantage, which it maintained after a lapse of twenty years.—*Library of Useful Knowledge, Farmer's Series.*

THE DIFFERENCE OF EXHAUSTING AND ENRICHING TILLAGE.

Grant me space in your columns to communicate to the public the results of my experience in farming. I have been trying to farm for twenty years, nineteen of which, I persisted in my own course, unaided by agricultural papers, or by any systematic rule; consequently my improvements were small. The last year I subscribed for the Tennessee Farmer, and searched, read and examined it, and other authors—entirely turning my attention to *book farming:* and I freely acknowledge, that the improvements I have made during that period, have far exceeded those of the nineteen previous years; and I return you my sincere thanks for your aid—though I have not acquired all my knowledge from your paper alone, yet I have been materially benefitted by it, inasmuch as it begat in me a spirit of enterprise and desire for improvement. As I have derived great benefit from the knowledge and experience of others, I think it my duty in return to furnish them with the results of my experience, soliciting an enlightened community to pursue an improved and systematic course of agriculture, assuring them, that they will find the profit resulting therefrom amply sufficient to compensate them for their labor and toil. I must, however, confine my remarks to a few only of my experiments.

In the year 1822, I purchased a farm of 354 acres, 125 of which was cleared. The land was once good second-rate land, but was now completely worn out. Being greatly indebted for my farm, the idea of improving the cleared land never entered into my mind; but I set to work opening fresh land, until I had enlarged my cleared land to 225 acres: this I continued to cultivate in corn, until a part of it was so far exhausted, that I could no longer cultivate this crop profitably.

In the spring of 1833, I planted two acres of my land in corn, (this two acres was about equal to the balance of my cleared land,) on which I raised 20 bushels to the acre; the corn was worth 25 cents per bushels, amounting to $10; the cost of cultivating was $7, which left me a profit of $3. The following year it remained uncultivated. The next fall I sowed it in wheat. The following spring I hauled out ten tons of good stable manure, which I spread over one acre. At harvest I gathered from the two acres nineteen bushels of good wheat, which brought me the sum of $16.62½. The cost of the crop, I estimated at $6.62½. The manure say, was worth $10, which brings the account out even. In the spring I sowed orchard grass and clover seed. The succeeding spring I sowed over the grass a quantity of plaster and ashes. The result was—from the manured arce I mowed five loads of hay; from the one not manured, I mowed two loads; each load was worth at least $5; consequently, the manured acre yielded me $25 worth of hay; the unmanured acre only $10 worth. The cost of harvesting the manured acre was $1.50; plaster, &c., 50 cents. making $2. Profit, five loads of hay at $5 per load, $25, leaving a clear profit of $23 on the manured acre. The cost of harvesting the unmanured

---

* Farmer's Mag., vol. iv. p. 156. By other experiments made by Sir G. Mackenzie (ib. vol. v., p. 271,) it appeared that some shell marl was composed of

Lime	41 25	in 100 parts.
Carbonic acid	32	
Silex	14	
Argil	4	
Oxide of iron	2 5	
Inflammable matter	2	
Loss	4 70	

* The price of good marl, when raised by contractors, is charged at such various prices in different places, that we should probably mislead some of our readers if we were to state them. It is computed at separate sums for groundage, digging, and spreading upon the land; but independent of the cost of carriage, which is to be added. We may, however, observe that, when taken from the wastes or commons, it is the practice of some landlords to charge 5s. an acre for the land marled; others 2d. per farm-horse load; and in some parts of the north the expense has been thus calculated: paring the marl, say of three feet of superficial soil, 12s per cubic rood of 64 yards; getting and filling the marl, 12s.; loading it, supposing the pit to be at the distance of 100 or 150 yards, 21s.; and spreading, 4s. per rood.—Cheshire Report. p. 223; Stevenson's Lancashire, p. 496. In Hampshire, the total charge of marling, when done by the farmer's men and teams, at an average distance of 80 rods from the pit, is stated at £3 10s. per acre, presuming the quantity laid on to be 30 cart-loads of 1½ ton each; that is, taking common laborers at 2s., and horses, including wear and tear, at 4s. per day.—Vancouver's Hants, p 337.

acre was 75 cents; plaster, &c., 50 cents; making $1.25. Profit, two loads of hay, at $5 per load, $10; clear profit on this acre only $8.75. Difference of profit in one year in favor of the manured acre, $14.25.

I have this year made three experiments in my wheat field, to ascertain what kind of manure is best suited for wheat. I applied barn manure to one spot, barn manure and lime mixed on another spot, and on a third spot, I applied lime alone. I have tried other experiments with barn manure, and from my experience I am fully persuaded, that, lime or calcareous manure is the best for wheat. I am about trying the efficacy of clover and buckwheat, ploughed down, as a manure. I intend sowing wheat in the clover, and rye in the buckwheat field.

To furnish putrescent, or animal manures for all our worn-out fields, would require immense labor and expense. If lime will answer the same purpose—and I believe it will*—we should not much longer complain of poor land; for, in this country, we have an abundance of the best limestone and timber—and now, all that is wanting is knowledge and industry in the preparation and application of it to our lands; in both of these particulars, we must admit we are sadly deficient. We have but two alternatives, either to improve our lands, or to sell and go westward, where Providence has furnished a richer soil.

Suppose, for a moment, my whole farm to be as rich and as well cultivated as that one acre, (and I might have had it so if I had began to improve when I first purchased,) what would be the profit of it yearly? If on that one acre I make a profit of only $30, (and I am satisfied I will make more when the second crop is taken) my whole 225 acres would then yielded me a profit of $6,750, a sum greater than I can sell the farm for, and more than I have ever made on it since I owned it.

But suppose a clover crop to be twice as valuable as any other, I would still have $3,375. I will now deduct one-half of that amount for pasture land and failure of crops, &c., and I would still have a profit of $1,687. I will now suppose that $687 will be required to defray the expenses of the farm, I would still have a yearly profit of $1,000.

I will now give you a short account of my profit and loss for a few years.

Not being able to work myself, and having no force of my own, I am necessarily compelled to have my work done by hired hands. After I became unable to labor myself, I found that my hired hands were sinking money for me. I then resolved to keep a strict account of all my farming operations. At the end of the first year, I found, on balancing the account, that I was $163 in debt. I examined the account, and endeavored to ascertain, if possible, where the fault lay. I satisfied myself sufficiently to make a second trial; accordingly, I dismissed my manager and some of the hands, and employed a more faithful and industrious manager, determined, if possible, to profit by past experience. At the end of the next year, when my books were compared, I found I had made a profit of $93, a sum not half sufficient to pay the interest of the money I had laid out. A third trial is now going on, with the same manager, but more immediately under my own supervision, aided by all the knowledge I have been able to acquire from agricultural papers and other sources. I cannot yet make a fair estimate of the profits, but from present appearances, I think I shall realize near $500. Is it not astonishing to see the number of persons who subsist by farming entirely, still continue the old land-killing system, when such profitable results are to be expected from an improved mode of tillage?

Farming is both a pleasant and profitable employment, if properly carried on. The experience of thousands have taught us this, and any thing I could say, would not make it more clear.

I have been asked by some, "what use have we for rail-roads? our population can consume all the surplus which we now have." I answer, if we had rail-roads, the amount would be increased to a vast extent: our interest would become more united, and the danger of a disunion proportionably lessened.

A few words more to my brethen of the plough in East Tennessee. From the great irregularity of our surface, we have a great diversity of soils and climate, requiring the greatest agricultural skill, to ensure its full developments. Clover and lime, judiciously used, as a manure, will produce beneficial results, far beyond the expectation of those who have never tried them. Arouse then, brethren, to the improvement of your lands, and be assured, you will reap a reward, amply sufficient to compensate you for your labor.

Tennessee Farmer. WM. PEEPLES.

NEW APPLICATION OF ELECTRICITY.

We noticed not long since, in a foreign journal, a wager between a London scientific gardener, and a celebrated cook, that the former would produce a handsome salad of mustard and cress *from the seed*, before the latter could cook, in good style, a leg of mutton to be eaten with the salad. The wager was won by the gardener. The process was to immerse the seed for a time in oxymuriatic acid, then sow it in a light soil, letting it be covered with a metallic cover, and bringing in contact with the whole an electrical machine. By the same agent hen's eggs, which require twenty or twenty-one days to hatch by animal heat, have been hatched in a few hours. Water apparently free from any animalculæ, in an hour can be rendered full of living insects. It has long been suspected that what is called electro-magnetism performed a prominent part in the formation and growth of animal and vegetable matter, and these experiments would seem to place the matter beyond a doubt. Should these results be confirmed by further experiments, a new era in physiology, both vegetable and animal, may be considered as commenced, and another step taken in drawing the veil which shrouds the mysterious operations in the inner courts of the temple of nature.—*Gen. Far.* G.

MANURES.

Manure is the wealth of the farmer. This proposition cannot be too often repeated and enforced, for on the full belief of this axiom, and a corresponding practice, the success of the farmer mainly depends. Manure, whenever it may be found on the farm, is beneficial, but it never does all the good it might, unless it is properly prepared and judiciously applied. Most farmers are content if they are able to empty their yards once in two or three years of the accumulated piles of straw and cattle manure, at a loss of nearly one-half its efficient qualities; and the exuberant fertility of our western lands has hitherto in part justified this careless management of this important item in husbandry. Compost, or a mixture of earth with common manure, kept in a pile until the union and decomposition is perfect, is undoubtedly the best application that can be made to land. The efficient power is also greatly increased, as the earths employed in making the pile absorb the gases produced by the decomposition of the vegetable and animal matter, and become nearly of equal value. The mud which accumulates in swamps and low lands, where it lies useless and unproductive, may in this manner be converted into one of the most active restorers of exhausted soils. The yarding of cattle is to be preferred where practicable, to suffering them to run at large, and the additional quantity of manure made by stabling will, independent of the saving in fodder, nearly pay the expense of erecting stables for their accommodation.

Common sense would teach a farmer, that the sooner manure, when applied to the soil, can be put under the surface, the better the effect will be, and the less of its fertilizing qualities will be lost. Spread over the surface it certainly does good, but in a much less degree than when put under the surface. To this philosophical application of manure, much of success in the improved system of farming is owing, as it necessarily involves a rotation of crops, two principles of the first importance in ameliorating the soil, and advancing its products. Formerly the most of the manure was applied to the meadow lands, scattered over their surface, and these were allowed to remain in grass so long, that continued attention was required to produce ordinary burdens. It was erroneously supposed that the ploughing of lands intended for mowing would be destructive of grass crops, and their renewal as at present practised was not dreamed of. Now, where the soil is not so wet as to forbid it—and the system of draining leaves few pieces inaccessible to the plough—meadows are subjected to the same system of rotation as the rest of the farm, and when properly managed, no deficiency either in quality or quantity of hay need be apprehended. Experience here in the application of manure, is in perfect accordance with theory, and shows that when nature is properly understood, the way she points out will be found the easiest and most productive to the agriculturist.

The manner in which manures perform the effects attributed to them, there is reason to believe, is at present very imperfectly understood. That they become accessary in some way to the growth of plants is certain, and the general opinion seems to be that the decomposed matter is taken up by the roots, and again becomes incorporated in the new structure. Is it not possible, however, that the electric or magnetic influence, which seems to pervade nature, and the activity of which every new discovery tends more fully to develope, has a more important agency in the growth of plants than has generally been admitted? In the construction of the electric pile it is well known that alternate substances of metallic and animal or vegetable origin are employed, which seems to be precisely the condition in which the manures are the most effective. Vegetation does not succeed in the pure minerals which form the foundation of the various earths, nor will it flourish where the richest, and of course purest, manure is alone employed. Is it not probable then that the mixture of these moistened with water, constructing a true voltaic pile, by exciting the secretory powers of the plants, gives it vitality, and the powers of aggregation or growth. We throw out these hints for the examination of the curious, merely adding, that in whatever may they operate, manures are indispensable to the success of the farmer.—*Gen. Far.* G.

ECONOMICAL METHOD OF KEEPING HORSES.

BY HENRY SULLY, M. D.

Having received innumerable letters from gentlemen who keep horses, requesting a description of my plan of feeding, I shall save much trouble both to others as well as myself, by laying my system before the public. Having pursued the plan above seventeen years, I am enabled to appreciate its full value, and, being perfectly satisfied of its superior excellence, I hope to continue the same as long as I keep horses.

Most people who know me will allow, that horses in my employ enjoy no sinecure places. and few people can boast of their cattle being in better working condition, or more capable of laborious undertakings, than mine.

The loft above my stable contains the machinery for cutting chaff and grinding corn. From this loft each horse has a tunnel of communication with the manger below, and a tub annexed to each tunnel in the loft for mixing the ingredients composing the provender.

There should be no rack in the stable, because this may tempt the groom to fill it with hay, and thus by overloading the horse's stomach, endanger his wind, to say little of its expense and waste, for it is a well known fact, that if a horse has his rack constantly replenished with hay, he consumes and spoils upwards of thirty pounds per day.

The manger with which the tunnel communicates, should have cross-bars, of firm oak, placed at the distance of ten or twelve inches from each other, to prevent the horse from wasting his provender in search of the grain it contains, and this space between the cross-bars, allows the horse plenty of room to take his food.

The chaff-cutter I make use of, is manufactured by Mr. Wilmott, a very ingenious mechanic, who resides about five miles from Taunton, on the road to Wiveliscombe. He also provides corn bruisers, of the best construction, and any person keeping three or four horses, will save the prime cost of his machinery the first year of its trial, and the horses themselves, thus fed, to use the language of horse keepers, will always be above their work.

---

* We would caution friend Peeples against an exclusive reliance on lime for manure, valuable as it unquestionably is. Nothing can justify the neglect of animal and vegetable manures, without the application of which, the permanent fertility of land cannot be obtained—but when united with the use of lime, the effect will no doubt equal his expectation: but in both cases it must not be forgotten, that to insure profitable results, judicious tillage is indispensable.—*Editor Tenn. Far.*

When the provender is thoroughly mixed in the tub, previously weighing out each ingredient, the mixture should be given in small quantities at a time, many times in a day; and at night, enough is thrown into the tunnel to last till morning. This process will be found of very little trouble to the groom, who will only have to go into the loft six or eight times a day. As the component parts of the provender are weighed separately for each horses, we are certain he has his just proportion; and I have hereunto annexed my scale of feeding in four classes, for it sometimes happens that some of the ingredients cannot be procured, and at other times that it may be better to substitute others; but, whatever grain is given, it should always be bruised, or coarsely ground, and carefully weighed out; for by weight alone, is it possible to judge of the quantity of farinaceous substances, the horse consumes; it being well known that a peck of oats varies from seven to twelve pounds; consequently if the provender were mixed by measure, there would be frequently an uncertainty, as to quantity. Wheat varies from sixteen to twelve; barley from thirteen to sixteen; peas from seventeen to fifteen; beans* from seventeen to fifteen per peck. And as wheat, beans, peas, barley, and oats, are equally good, and of very trifling difference in price when their specific gravity is taken into consideration, I am equally indifferent which grain I use, but I should always prefer boiled or steamed potatoes for hard working horses, to be a component ingredient, whenever they can be procured.

As I call all ground or bruised grain of whatever description, *farina*, it will be so distinguished in the following

SCALE.

	Class 1.	*Class* 2.	*Class* 3.	*Class* 4.
Farina, consisting of bruised or ground peas, wheat, barley, or oats,.........	5 lbs.	5 lbs.	10 lbs.	5 lbs.
Bran, fine or coarse pollard,.............	—	—	—	7 lbs.
Boiled or steamed potatoes, mashed in a tub with a wooden bruiser, ...	5 lbs.	5 lbs.	—	—
Fresh grain,............................	6 lbs.	—	—	—
Hay cut into chaff,..........	7 lbs.	8 lbs.	10 lbs.	8 lbs.
Straw, &c., in chaff,........	7 lbs.	10 lbs.	10 lbs.	8 lbs.
Malt dust, or ground oil cake,....	—	2 lbs.	—	2 lbs.
Salt,....................................	2 oz.	2 oz.	2 oz.	2 oz.

By the above scale it will be seen, that each horse has his thirty pounds of provender, in twenty-four hours, which, I maintain, is full as much as he can eat. The two ounces of salt will be found to be an excellent stimulus to the horse's stomach, and should, on no account, be omitted. When a horse returns from labor, perhaps the groom will see the propriety of feeding him from his tub more largely, in order that he may be the sooner satified and lie down to rest.

Whenever oat straw can be procured, it is generally preferred; and some like to have it cut into chaff without threshing out the oats; but this is a bad plan, for in preparing a quantity of this chaff, unequal proportions of oats will be found in each lot, so that one horse will have too large a portion, whilst others have less than they ought, although the portions are accurately weighed.

The only certain method, then, is, to let the grain, of whatever description, be weighed separately from its straw, and the keeper of cattle will soon satisfy himself, that his cattle are in want of nothing in the feeding line. Many people object to potatoes, and think them unfit for working horses, but, from many years' experience, I am enabled to recommend them as a constituent part of the thirty pounds, and am convinced, that it is as wholesome and nutritious a food, as can be procured for laboring horses, which are called upon sudden emergencies, to perform great tasks, as has been abundantly proved by Mr. Curwen, M. P., who kept above one hundred horses on potatoes and straw, and always found that their labors were conducted better on this than any other food.—See Curwen's Agricultural Hints, published 1809.

MAKING PORK.

The business of fattening pork for sale is practised to some extent by most of our farmers, and when performed economically, or when the most is made of the materials given them, it is undoubtedly a source of handsome profit. Yet all will admit, that when carried on in the manner it sometimes is, the process of pork making drains, instead of replenishing, the farmer's pocket.

To make fattening hogs profitable, it is necessary, first of all, that the breed selected for feeding should be a good one. There is a vast difference in hogs in the respect of easy fattening, proper proportion of bone, weight, &c., and the farmer who thinks to make money by feeding the long snouted, humpbacked, slab-sided animals, that are too frequently found among farmers, and disgrace the very name of swine, will find in the end that he has reckoned without his host, and has thrown away both time and money.

There are several good breeds of pigs now in the country, mostly produced by crossings of other kinds with the Chinese, and of course having different degrees of aptitude to fatten; and these breeds have been so disseminated over the country, that any farmer who is willing to make the effort, may have some improved animals in his pens. The time has gone by when a hog should be kept four years to weigh four hundred; the business of fattening is little understood where hogs of a year and a half do not reach that amount, and some pigs have even exceeded that weight.

Next to selecting good breeds, it is requisite that they should be kept constantly growing. There must be some foundation for fattening, when the process commences, or much time will be lost in repairing errors, and much food consumed in making carcass that should be employed in covering it with fat. Hogs should be kept in clover pasture, a field being allotted to them for their exclusive use, so large in proportion to their numbers that the feed may always be fresh, yet not so much so as to run up to seed, or grow coarse or rank. They should have the slops of the kitchen, the whey or buttermilk of the dairy, unless this is required for young pigs, and in general every thing they will eat to advantage, or which will promote their growth.

The manner in which the materials intended for fattening pork is prepared and fed, has a decided influence on the rapidity of the process, and of consequence on the aggregate profits. If given out raw much of the value of the article is lost; grain is much improved by grinding, but the full effect of all kinds of feed is only brought out by cooking. Corn is without a peradventure the best article ever producedr fo making good pork; and though other substances good may occasionally be used with advantage, and may produce pork of fair and quality, yet experience has proved that the real corn fed meat is on the whole superior to all others. Hogs will fat on corn given to them in any state, yet it is far preferable when soaked, ground, steamed or boiled. A farmer of our acquaintance, and who is celebrated for the weight of his hogs, and the excellence of his pork, is in the habit of mixing oats with his corn before grinding, in the proportion of about one-fourth, and thinks that if he had not the oats of his own, he should be a gainer in exchanging corn, bushel for bushel, for oats, rather than not have them to mix with his swine feed. He thinks they eat the mixture better than clear corn meal, are less liable to a surfeit, and of course will fat much faster with the oats than without them. Peas have generally been ranked next to corn as an article for making good pork, and they are probably the best substitute that has yet been found, hogs feeding well on them, fattening rapidly, and the pork being of good quality. It is almost indispensable that peas should be ground or soaked previous to feeding. Potatoes are more extensively used for fattening hogs than any other of the cultivated roots, and are probably the best of the whole for this purpose. Unless they are boiled, however, they are of little value comparatively, but when cooked they will give the hogs a fine start in feeding, and they may then be easily finished off with corn or peas. The fattening of hogs on apples may be considered as one of the successful innovations of the age, it being certain that this fruit possesses a value for that purpose which but a few years since was wholly unknown. The success of this experiment has given a new value to orchards, and will probably check their destruction, which in some sections of the country had already commenced to a considerable extent. The various reports from gentlemen of intelligence of the practical results of apple feeding are most gratifying, and we have no doubt the system will be fully approved wherever fairly tested. Where convenient, let the hogs lie in the orchard from the time the fruit begins to fall, till it is time to gather apples for winter or cider, and they will in most cases be found respectable pork. When it is necessary to put them in the pen, boiled apples mixed with a small quantity of corn, oats, peas, or buckwheat meal, will fill them up rapidly, make them lard well, and fill the farmers' barrels with sound, sweet pork, of the first quality. If any, however, are doubtful, they can easily finish off their apple fed pork, as is generally done with potatoe fed, with corn or peas, and with similar results —*Gen. Far.* G.

BEET SUGAR.

Extract from a file of the "Journal des Debats, 15th April, 1836," at the rooms of the Young Men's Association, in this city.

Four residents of the village of Wallers, department of the north, one a blacksmith and the others farmers, formed, some months since, an association for manufacturing beet root sugar, with a capital of 400 fr.* in four equal shares of 50 francs a piece. These enterprising men obtained the most happy results. They were able, every day, to mako a loaf of sugar of medium quality, weighing from forty to fifty pounds. The following is their simple mode of manufacturing the sugar. They used *curry combs!!* to rasp the beet roots with, and linen bags for expressing the juice; the syrup thus obtained was boiled in the family iron pot, on the blacksmith's fire. By these simple means they were able to make a loaf every day.

More lately still, Messrs. Rapez and Lecerf, of Onnaing, have also manufactured beet sugar on a small scale. The sugar of Mr. Lecerf particularly is, in the opinion of a sugar refiner in Paris, of a quality that he would pay for at the rate of from 57 to 58 francs the 50 kilogrammes. Monsieur Lafitte, deputy from Seine and Oise, and one of the most zealous propagators of agricultural improvements, is on the point of establishing some "sucreries" on his farm, at Auverneau. Should, thanks to the endeavors of the Royal Agricultural Society, the process of making beet sugar become popular in France, we shall soon see the day when every family will make its sugar, as it now does its preserves.

THE SHEEP.—(*Continued from page* 118.)

THE SOUTH-DOWN SHEEP.

The next is the hill sheep, adapted to more elevated situations and shorter feed on the natural and permanent pastures; able also to travel, without detriment, a considerable distance to the fold and to the down. There can be no hesitation in fixing on the South-Down as the model here.

The following is the substance of the description of this sheep by Mr. Ellman, who, if he may not be considered, like Mr. Bakewell with regard to the Leicesters, as founder of the breed, yet contributed more than any other man to its present improvement and value.

The head small and hornless; the face speckled or grey, and neither too long nor too short. The lips thin, and the space between the nose and the eyes narrow. The under jaw, or chap, fine and thin; the ears tolerably wide, and well covered with wool, and the forehead also, and the whole space between the ears well protected by it, as a defence against the fly.

The eye full and bright, but not prominent. The orbits of the eye—the eye-cap, or bone,—not too projecting, that it may not form a fatal obstacle in lambing.

The neck of a medium length, thin towards the head, but enlarging towards the shoulders where it should be broad and high, and straight in its whole course above and below. The breast should be wide, deep, and projecting forwards between the fore legs, indicating a good constitution, and a disposition to thrive. Corresponding with this, the shoulders should be on a leve with the back, and not too wide above; they should bow outward from the top to the breast, indicating a springing rib beneath, and leaving room for it.

---

* The English horse bean is probably here meant.—Ed.

* Valuing the franc at 18¾ cents, this would amount to $75.

The ribs coming out horizontally from the spine, and extending far backward, and the last rib projecting more than the others; the back flat from the shoulders to the setting on of the tail; the loin broad and flat; the rump long and broad, and the tail set on high and nearly on a level with the spine. The hips wide; the space between them and the last rib on either side as narrow as possible, and the ribs, generally, presenting a circular form like a barrel.

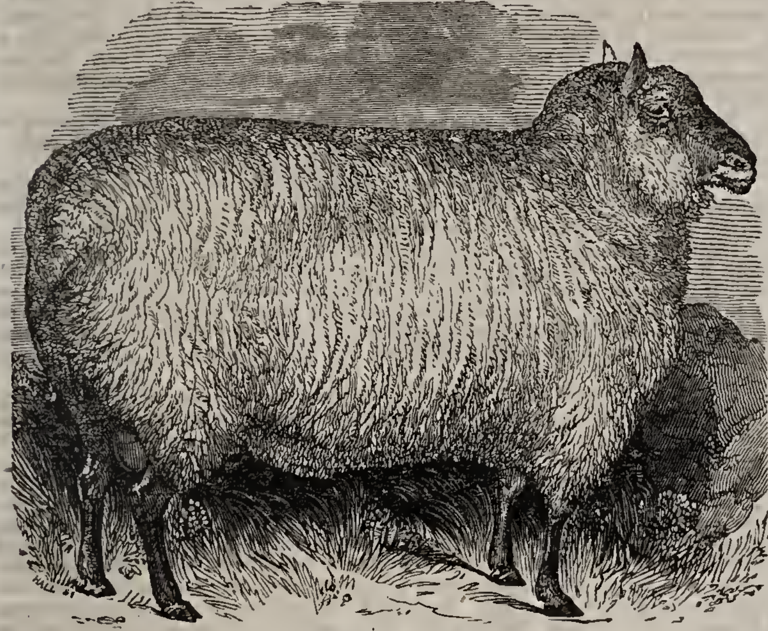
The belly as straight as the back.

The legs neither too long nor too short. The fore-legs straight from the breast to the foot; not bending inward at the knee, and standing far apart both before and behind; the hocks having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full; the bones fine, yet having no appearance of weakness, and of a speckled or dark colour.

The belly well defended with wool, and the wool coming down before and behind to the knee, and to the hock; the wool short, close, curled, and fine, and free from spiry projecting fibres.

The South-Down is adapted to almost any situation in the midland part of England; it has a patience of occasional short keep, and an endurance of hard stocking, equal to any other sheep; an early maturity, scarcely inferior to that of the Leicesters, and the flesh finely grained, and of peculiarly good flavor.

Fig. 45.



South Down Ram.

It is only lately that the South Downs have been brought to that degree of perfection which they at present exhibit. Their zealous advocate, and the breeder to whom they are indebted more than to any other for the estimation in which they are now justly held, Mr. Ellman, says of them—"This breed was formerly of a small size, and far from possessing a good shape, being long and thin in the neck, high on the shoulders, low behind, high on the loins, down on the rumps, the tail set on very low, perpendicular from the hip-bones, sharp on the back—the ribs flat, not bowing, narrow in the fore-quarters, but good in the leg, although having big bone." Arthur Young, who saw them in 1776, thus speaks of them—"Fine wool is certainly a very considerable object, provided it is gained on a well-formed carcase; but if a fine coat is procured at the expense of a thin chine, low fore-end, and rising back-bone, the advantage is purchased too dearly. The faults most common in the South Down breed are these three. They are found very general even in the best flocks, inasmuch as not more than one sheep in a hundred, perhaps in two hundred, is to be seen tolerably free from them."

Since that time they have materially improved, yet not by any admixture of foreign blood, for even the cross with the Leicesters was a failure, and the promised advantages to be derived from the Merinos were delusive. The sheep-owners began better to understand, and carefully to practise, the true principles of breeding. The "sorting" of their flocks was no longer left to the menial; the sexual intercourse of the sheep was no longer a matter almost of chance-medley; but a system of selection was adopted and sedulously followed. In addition to this, as has been already remarked, there was a great improvement in agriculture generally. The introduction of the turnip-husbandry enabled the farmer to keep more sheep on the same quantity of land, and to keep them better, and, in fact, to feed them up earlier and more certainly to that development of form and utility of which they were capable. "They are now," says Mr. Ellman, "much improved both in shape and constitution. They are smaller in bone, equally hardy, with a greater disposition to fatten, and much heavier in carcase when fat. They used seldom to fatten until they were four years old; but it would now be a rare sight to see a pen of South Down wethers at market more than two years old, and many are killed before they reach that age."

For an account of the most perfect form of the South Down sheep, the reader is referred back to p. 111 of this Treatise, where a description is given of what a hill or down sheep ought to be; and to which may be added, that this animal has a patience of occasional short keep, and an endurance of hard stocking scarcely surpassed by any other sheep, an early maturity not inferior to that of the Leicesters, the flesh finely grained, and the wool of the most useful quality.

The South Down sheep are polled; but it is probable that the original breed was horned. It has been shown that the primitive breed of sheep was probably horned. The ram that was sacrificed by Abraham, instead of his son, was entangled in a thicket by his horns; and it is not unusual to find among the male South Down lambs some with small horns.

The dusky or sometimes black hue of the head and legs of the South Downs not only proves the original colour of the sheep, and perhaps of all sheep, but the later period at which it was seriously attempted to get rid of this dingy hue. In almost every flock, notwithstanding the great care which is now taken to prevent it, several parti-coloured lambs will be dropped; some with large black spots, some half black, and some entirely black. A writer in the "Annals of Agriculture" states, that "he has frequently had twelve or fourteen perfectly black lambs, although he never kept a black ram or ewe." From this he draws the conlusion, that their original colour was black; that art alone produced the white wool; and that, if the best of the South Downs were left in a wild state, they would in a few years become black again.

There are no sheep more healthy than the South Downs. They seldom suffer from the hydatid on the brain, nor, on the majority of the farms, are they so much exposed to the rot as in many other districts. Their general health may be much connected with this frequent change of food, and their periodical journeys to and from the fold.

The rams are usually put with the ewes about the middle of October, and remain with them three or four weeks. The careful breeder, where his farm will admit of it, puts only one ram to a certain number of ewes in each enclosure; about forty to a lamb ram, and eighty to one fully grown. He thus knows the progeny of each ram, a circumstance of no little importance with regard to the improvement of the breed. At the end of the third or fourth week the whole flock is again put together; two or three rams being left with them in case any of the ewes should still remain at heat.

It is believed that the treatment of the ewes at this time has considerable connexion with the number of lambs which they will produce. If they are well kept, a considerable proportion of them will probably have twins. It is possible that the stimulus of plentiful and nutritious food may have some influence on the number of the lambs; but if the farming arrangements of the sheep-breeder should render it desirable for his stock thus rapidly to multiply, he would be most likely to accomplish his object by breeding from rams and ewes that were twins. No fact can be more clearly established than an hereditary tendency to fecundity.

The average dead weight of the South Down wether varies from eight to eleven stones; but Mr. Grantham exhibited a pen of three sheep in the last show of the Smithfield Club, (1835,) one of them weighing twenty stones three pounds; a second, twenty stones six pounds; and the third, twenty-one stones.

The average weight of the fleece of a South Down hill sheep was stated by Mr. Luccock, in 1800, to be two pounds: it has now increased to three pounds. The fleece of the lowland sheep, that used to be three pounds, is now three and a half, or four pounds. This is the natural consequence of the different mode of feeding, and the larger size of the animal. The length of the staple in the hill sheep rarely exceeded two inches in length, and was oftener not more than one and a half inches: it is now more than two inches, and in some of the lowland sheep it has reached to four inches. The number of hill sheep had rather decreased since 1800, and those in the lowlands had materially so; but now that South Down wool is once more obtaining a remunerating price, the flocks are becoming larger than they were. The colour of the wool differs materially, according to the colour of the soil. The shortest and the finest wool is produced on the chalky soil, where the sheep have to travel far for the food; but there is a harshness and brittleness about this wool which was always seriously objected to.

The microscopic appearance of the South Down wool is delineated in page 90. The fibre is the six-hundredth part of an inch in diameter: that of the Saxony wool being but the eight-hundred-and-fourth part. The serrations are only 2,080 to an inch; while in the Saxony wool 2,720 were observed in the same space.

The practice of letting and selling rams was more prevalent and more profitable among the breeders of the South Down sheep than of any other kind, except the Leicesters. At the sheep-shearing at Woburn, in 1800, a South Down ram, belonging to the Duke of Bedford, was let for one season at 80 guineas, two others at 40 guineas each, and four more at 28 guineas each. This practice has been of later years pursued extensively and profitably by Messrs. Ellman, Grantham, Todd, and others.

Two years previously to this, the emperor of Russia bought two of Mr. Ellman's rams, in order to try the effect of the cross on the northern sheep. The Duke of Bedford, at the request of Mr. Ellman, put a price upon them, observing that he did not wish to charge a foreign sovereign, who had done him so much honor, more than any other individual. The price fixed by the Duke was 300 guineas for the two, and he purchased two more for himself at the same rate.

The pure South Downs have penetrated to almost every part of the kingdom, and everywhere they have succeeded when care was taken that the locality and the soil were suited to the breed; except that on the northern hills, where the Cheviots and the black-faced sheep wander, they have not thriven so well as on their native downs.—*Library of Useful Knowledge, Farmer's Series.*

ON THE USE OF LIME AS A MANURE.—By M. Puvis.

Translated for the Farmers' Register from the *Annales de l'Agriculture Francaise*, of 1835.—*(Concluded from page* 117.*)*

ABSORPTION OF PLANTS, IN VEGETATION ON CULTIVATED SOILS.

32. Vegetation on uncultivated soils operates under conditions altogether

different from those of the cultivated, so that the results receive modifications which it is important to examine.

Nature produces, and continues to produce, all the vegetable mass in spontaneous growth, without any other condition than the alternation and succession of the species. In vegetation on cultivated land, by bringing together the same individual plants which are to grow abundantly on a soil and in a climate which, in most cases, are not those which nature had designed, there are required, besides the general condition of alternation of the species, frequent tillage of the soil, and means to repair its losses, that the culture may be productive and be continued. However, with these new conditions, the force of absorption of plants on the atmosphere still furnishes the greater part of the vegetable principles in soils not limed—and still more in limed soils.

To form a precise idea, we will take it in the land of the writer, its culture and its biennial rotation. As the same qualities of soil are found elsewhere, as no particular circumstance increases or impairs its products, there would be found similar results, for the same qualities of soil, with a different culture. The inferences which we will draw from ours will apply then to all others.

On our soil of the third class, [or worst quality,] fallow returns every two years, with a biennial manuring of 120 quintals to the hectare. This mass contains more than four-fifths of water, which should not be counted as manure, and consequently the substance which serves for the reparation of the soil is reduced to 24 quintals. We reap, in rye, straw, and buckwheat, after the year of fallow, a dry weight of 40 to 50 quintals on an average. If it is supposed that all the manure is consumed, or employed in forming vegetable substance, still the soil would have furnished 18 to 20 quintals more than it received, and which excess would be due to the power of absorption, whether of the soil or of the plants, on the atmosphere.

On land of middle quality, which yields a crop every year, with a double manuring, that is to say, of 48 quintals of dry manure, in two years there is a product of wheat, maize, or potatoes, which amounts to from 12 to 15,000 weight, 120 to 150 quintals, of which two-thirds, or 80 quintals at least, are derived from absorption.

On soils of good quality, with a manuring of one-third more than the last, which is equal to 64 quintals of the dry substance to the hectare, there are obtained of dry products, in grain, straw, roots, or hay, double of the last, or nearly so, of which three-fourths, or 180 quintals, are due to the power of absorption.

Lastly—upon the most fertile soils, *(sols d'exception,)* where manures are useless, the product, often double, or at least half as much more than the last-mentioned, will amount to 360 quintals to the hectare in two years. This product would be, as in spontaneous vegetation, entirely due to absorption.

We would have, then, to represent the products of two years, in quintals, in the four classes of soil under consideration, the progressive amounts of 42, 130, 240, 360; or, by deducting from these products the weight of the manure, we would have, to represent the power of absorption, the progression 18, 82, 176, 360 quintals. From this is deduced, as the first conclusion, that, supposing the plants have consumed and annihilated all the substance of the manure given, (which is beyond the truth,) plants receive a much greater part of their substance from the atmosphere than from the soil; and that this power of drawing food from the atmosphere increases with the goodness of quality in soils.

33. The proportion of fixed substances, or ashes, in agricultural products, is 43 pounds to the 1,000, and consequently, in our four classes of land, the quantity amount to 180, 559, 1,032, 1,548 pounds. But the soluble saline substances form at least half of these ashes: they are then produced in the two years of the rotation, in the quantities of 90, 279, 516, 774 pounds. But, according to Kirwan, barn yard manure yields two per cent of soluble salts: then the manure given to these soils contained 48, 96 pounds, 128 of saline substances, which, being deducted from the preceding quantities, leave the four classes of soils stated 42, 183, 388, 774 pounds of products in soluble salts, in two years of the rotation, gained solely by the absorbing forces of the soul and of plants.

34. But, in the same soils, with the same manures and the same tillage, by the addition to the thickness of the ploughed layer of only one-thousandth part of lime, the products, whether volatile or fixed, are increased in a striking manner: the soil of the first-named (or lowest) quality reaches the product of the second—the second rises one-half or more—and that of the best (of the manured soils) increases a fourth. Thus, our scale of product becomes 130,200,-300 quintals—and deducting the manure, 106,152,236 quintals, for the two years of the rotation. The most fertile soil *(sol d'exception)* cannot receive lime beneficially, because it contains it already; these lands all belong to alluvions, where the calcareous principle has almost always been found in greater or less proportion.

35. The product of fixed principles [as ashes] in the three classes of limed soils, would be 559,868,1290 pounds, and in soluble salts 278,430,645 pounds; and, deducting the soluble salts of the manure, the quantities would be 230,-334,525. A light addition of lime has then doubled the force of absorption, and almost tripled the quantity of saline principles produced. One of the most remarkable effects of lime consists then, in making a soil produce a much greater proportion of saline principles: and if the experiments of M. Lecoq upon the efficacy of saline substances on vegetation are to be admitted, it would be in part to the phenomenon of their production that lime would owe its fertilizing effect.

36. It results from what precedes, that salts are formed in the soil or in vegetables: thus we see every day the nitrates of potash and of lime form under our eyes in the soil, or elsewhere, without any thing indicating to us the origin of the potash which is contained. But potash itself again forms spontaneously in drawn ashes, according to the observations of the chemist Gelhen. We see salts also renewed in the artificial nitre beds, with the aid of moisture and exposure to the air. But it is the presence of lime that determines this formation more particularly. The nitrates abound in the ruins of demolished edifices; they are formed in the walls, and in all parts of houses situated in damp places; they effloresce on the buildings of chalk in Champagne; they are produced spontaneously in the ploughed lands of the kingdom of Murcia. This effect, which we see that the calcareous principle produces every where, we think it produces in all the soils to which it is given, and where meet the circumstances which favor the formation of nitrates, viz: humidity, vegetable mould, and exposure to the air. But, according to the experiments of M. Lecoq and others, and the opinion which is established of the old agriculturists, the nitrates are the most fertilizing salts. It would be then to their formation, which it promotes in the soil, that lime owes, in part, its effect on vegetation.

37. The foregoing proofs of the daily formation in the soil, and by vegetable life, of saline and earthy compounds, taken in nature and on a great scale, are doubtless sufficient: but they may still be supported by the experiments and and opinions of able men who have adopted the same system.

And first—in the experiment of Van Helmont, in five years, a willow of five pounds grew to weigh 169, and had caused a loss of only two ounces to the soil which bore it. But the 164 pounds which the willow had taken contained five pounds of ashes, which are due entirely to absorption, since the leaves and the other droppings of five years, which were not saved. would have given at least one pound of ashes, which makes up for, besides all that which, in spite of the sheet of lead which covered the top of the vessel in which the willow grew, it might have received in the waterings, and from other fortuitous circumstances. Boyle has repeated and confirmed this experiment in all its parts.

Lampadius, in different isolated compartments, some filled with alumine, others with silex, other with [carbonate of] lime, all pure, has made plants to grow, of which the burning has yielded to analysis like results; and which, consequently, contained earths which were not in the soils which bore them.

Saussure, in establishing that plants do not take in the soil more than a twentieth of their substance, in extract of mould and in carbonic acid, has necessarily established, by the same means, that almost the whole amount of fixed principles do not proceed from the soil.

Bracannot has analyzed lichens, which contained more than half their weight of oxalate of lime—and he has observed others covered with crusts of carbonate of lime, when there was none of this earth in the neighborhood.

Shrader, in burning plants grown in substances which did not contain any earthy principle, has found in their ashes, earths and salts which were neither in the seeds sown, nor in the pulverized matters in which the plants grew.

Lastly—the analyses of Saussure, though showing more of the carbonate of lime in the ashes of plants which grew on calcareous soils than on soils not calcareous, yet, nevertheless, they have formed more than a sixth of the ashes from vegetables on silicious soils—and Einhoff has found sixty-five per cent of lime in the ashes of pines grown on silicious soil. The labors of science then confirm what we have above established, that plants, or the soil, form salts and earths.

38. The fertilizing effect of fallow, or ploughing, of moving and working the soils, prove still more that all these circumstances determine the formation of fertilizing principles, and probably of saline principles, in all the parts of the soil which receive the atmospheric influences.

But salts are also formed in plants. The nitrate of potash, which takes the place of sugar in the beet—the oxalate of potash, so abundant in sorrel—the carbonate of potash in fern, in the tops of potatoes, and in almost all vegetables in the first period of their life—the sulphate of potash in tobacco—the nitrate of potash in turnsole and in pellitory—prove, without reply, that vegetation forms salts, as it forms the proper juices of plants, since the soil contains the one kind no more than the other. But can we say where plants take the elements necessary for all these formations? They can take them only in the soil by means of their roots, or in the atmosphere—in the soil, which would itself take them in the atmosphere, in proportion to the consumption of plants—or directly in the atmosphere by means of their leaves, which would there gather these elements. And if the analyses of the soils, and of the atmosphere, show almost none of these elements, it will be necessary to conclude from it that the substances which analysis has found there, are themselves, or would furnish if decomposed, the elements of the saline substances, although science may not yet have taught us the means of reaching that end.

39. The formation of lime, like that of the saline principles necessary to plants, is an operation which employs all the forces of vegetation—and these forces, directed to this formation, have no energy left to give a great development to plants: but when the vegetable finds the calcareous principles already formed in the soil, it makes use of them, and preserves all its forces to increase its own vigor and size.

It would then result, from all that has been said, that lime modifies the texture of the soil—makes it more friable—invigorates it—renders it more permeable—gives it the power to better resist moisture as well as dryness—that it produces in the soil the humate of lime which encloses a powerful means of fertility—that lime increases much the energy of the soil and of plants to draw from the atmosphere the volatile substances of which plants are composed, oxygen, hydrogen, carbon, and azote—that the limed soil in furnishing to plants the lime which they need, relieves the soil and plants from employing their powers to produce it—and finally, that lime promotes the formation of fixed substances, earthy or saline, necessary to vegetables. All this whole of reciprocal action and reaction of lime, on the soil, plants, and atmosphere, explains in a plausible manner its fertilizing properties. We would, consequently, have nearly arrived at the resovling of an important agricultural problem, upon which were accumulated all these doubts.

THE AMOUNT OF LIME TAKEN UP BY VEGETATION.

40. The ashes of plants from calcareous soils, or those which have been made so by manures, contain thirty per cent of the carbonate and phosphate of lime, which, by taking off the crop, is lost to the soil. But the product of limed land of middle quality, is during the two years of the course of crops, about 20,000 pounds of dry products to the hectare, which contain a little less than a hectolitre of lime in the calcareous compounds of the ashes. The vegetation has then used half a hectolitre a year. But we have shown that there was necessary, on an average, three hectolitres per hectare each year. Vegetation hen does not take up, in nature, but a sixth of the lime which is given profit-

ably to the soil; the other five-sixths are lost, are carried away by the water, descend to the lower beds of earth, are combined, or serve to form other compounds, perhaps even the saline compounds, of which we have seen that lime so powerfully favors the formation. Another portion, also, without doubt, remains in the soil, and serves to form this reserve, which in the end dispenses, for many years, with the repetition of liming.

OF THE EXHAUSTION OF THE SOIL BY LIMING.

41. "Lime," it is said, "only enriches the old men: or it enriches fathers and ruins sons." This is indeed what experience proves, when, on light soils, limed heavily, or without composts coming between, successive grain crops have been made without rest, without alternations of grass crops, or without giving to the soil alimentary manures in suitable proportion. It is also what has happened when magnesia, mixed with lime, has carried to the soil its exhausting stimulus. But when lime has been used in moderation—when, without overburdening the land with exhausting crops, they have been alternated with green crops—and when manure has been given in proportion to the products taken off—the prudent cultivator then sees continue the new fecundity which the lime has brought, without the soil showing any sign of exhaustion. No where has there been complaint made of argillaceous soils being damaged by lime; and the productiveness of light soils is sustained in every case that the lime was used in compost.

In America, where the lime of oyster shells has taken the place of that of magnesian limestone, the complaints of the exhausting effects of lime have ceased.

HEALTHINESS GIVEN TO THE SOIL AND TO THE COUNTRY BY CALCAREOUS AGENTS.

42. The unhealthiness of a country is not caused by the accumulation of water, nor from soil being covered by water. Places on the borders of water do not become sickly except when the water has quitted some part of the surface which it previously overflowed, and the summer's sun heats the uncovered soil, and causes the decomposition of the remains of all kinds of matter left by the water, and contained in the upper layers of the soil. Thus ponds are not unhealthy, except when drought, by lowering the waters, leaves extensive margins bare, to be acted on by the sun and air. In rainy years, fevers on the borders of ponds are rare.

Epidemic diseases most often arise on the borders of marshes laid dry—in the neighborhood of mud thrown out of ditches or pits—and in the course of bringing new land into cultivation, where the ploughed soil is for the first time exposed to the summer's sun. In the interior of Rome, the vineyards, the gardens are remarkably unhealthy—while the sickliness disappears where the emanations from the soil are prevented by buildings. In the Pontine marshes, they cover the dried parts with water to arrest the danger of their effluvia. It is then from the soil, and not from the waters at its surface, that insalubrious emanations proceed. Waters placed on the surface, always in motion, agitated by every wind, are not altered in quality, and do not become unhealthy; but whenever they are contained in some place without power to receive exterior influences, or to have motion, they are altered in their odor, taste, and consequently injured in relation to health.

Whenever water then, without covering the soil, penetrates the upper layer without being able to run through the subsoil, it remains without motion, and stagnant, within the soil—is changed by the summer's sun, serves to hasten the putrefaction of the broken down vegetable remains in or on the mould, and the exhalations from the ground become unhealthy. Thus are all drained marshes, of which the surface only is dry, while the water still penetrates the subsoil—thus, all the margins of rivers which have been covered by recent inundations of summer, are unhealthy; thus also, (for a great and unhappy example,) the argillo-silicious plateaux, whenever the closeness of the subsoil does not let the water pass through, produce, in dry years, at the close of summer, emanations which attack the health of the inhabitants.

43. But this unhappy effect appears almost no where in calcareous regions: the margins of lakes and ponds there situated do not produce the same unhealthiness, and even the marshy grounds there are less unhealthy.

The waters which spring out of, or run over calcareous beds, are always healthy to drink. The borers of Artesian Wells are anxious that the water which they obtain, to be good, may come out of the calcareous strata which they go through. When the waters which hold carbonate of lime in solution in carbonic acid, run over the surface, they give health to the meadows, in changing the nature and quantity of the products.

Linnæus thought that the unhealthiness of most countries depended on the nature of the water, and was owing to the argillaceous particles which they contain; now these argillaceous particles are always precipitated by the calcareous compounds. For this reason, the waters which stand upon, or run over marl or calcareous rock, are almost always limpid and clear, because the argillaceous particles have been precipitated by the effect of the solution in the water of the calcareous principle, which is itself dissolved by an excess of carbonic acid.

We are not far from believing, then, that throwing rich marl, or limestone, into a well of muddy and brackish water, might have the effect, in part at least, of clearing it, and making it healthy to drink. This remedy, if it should not be as useful as we think, at least could not produce any injury.

Lime, in all its combinations, destroys the miasmata dangerous to life. Its chloride annihilates all bad odors, arrests putrefaction, and in short, has subjected the plague of Egypt to the skill and courage of Parisot. The white wash of lime upon infected buildings, upon the walls and mangers of stables, is regarded as serving to destroy the contagious miasmata of epidemic and epizootic diseases.

Lime destroys the plants of humid and marshy soils, and makes those suitable to better soils spring up: then its effect is to give healthiness or vigor to the soil, to dry it, and make it more mellow and permeable. The water then is no longer without motion, and altered consequently in its condition. The limed soil, then, to the depth it is ploughed, ought to change the nature of its emanations as well as its products: and if the lower strata or subsoil, send up emanations, these effluvia, in passing through the improved layers of soil, where the calcareous agent is always at work and developing all its affinities, ought also to be modified, and take the character of those of the upper bed. The limed soil, then, it would seem, ought to be made healthy.

But what we maintain here by induction, by reasoning, is fortunately a fact of extensive experience. Among all the countries in which lime has carried and established fertility, there is not cited, that I know of a single one where intermittent fevers prevail—while they have never disappeared in a country even where an active culture draws good products from the impermeable argillo-silicious soil.

44. To extend the great benefit of healthiness to the whole of a country, it is no doubt necessary that the whole country should receive the health-giving agent. However, on every farm in proportion as liming is extended over its surface, the chances of disease will be seen to diminish—and the healthiness of the country will keep pace with the progress of its fertility.

RESULT OF THE USE OF IMPROVING MANURES ON THE SOIL OF FRANCE IN GENERAL.

Three-fourths of the whole territory of France, to be rendered fruitful, have need of calcareous agents. If the third of this extent has already received them, (which we believe is above the truth,) upon the other two-thirds, or the half of the whole, the agricultural products, by this operation, would be increased one-half or more, or one-fifth of the total amount. But agriculture, in enriching itself will increase its power, its capital, and its population; and will naturally carry its exuberant forces, its energies and activity to operate on the greater part of the 7,000,000 of hectares of land now [*en friche*] untilled, waste, and without product. By bringing these lands into cultivation and fertilizing them by liming, or by paring and burning the surface, they would be made to yield at least one-sixth of the total product. The gross product of the French soil, then increased by a third or more, might also give employment and sustenance to a population one-third greater than France now possesses; and this revolution due successively to the tillage of the soil, to annual improvements keeping pace with the progressive increase of crops, would be insensible. The state would grow in force, in vigor, in wealth, in an active and moral population, which would be devoted to peace, and to the country, because it would belong to this new and meliorated soil. And this great result would be owing simply to applying calcareous manures to the extent of the soils of France which require them!

46. Upon our extent of 54,000,000 of hectares, our population, increased to 44,000,000, would have for each, one hectare and a quarter, and would be less confined than the 24,000,000 of inhabitants of the English soil, who have only one hectare to the head; and yet our soil is at least as good, and it is more favored by climate. And then our neighbors consume in their food at least a fourth or fifth of meat, while only one-fifteenth of the food of our population consists of meat; and as there is required twelve or fifteen times the space to produce meat as bread, it follows that twice the extent of soil is necessary to support an Englishman as a Frenchman. Hence it results, that with an increase of one-third, our population would still have a large surplus product which would not exist in England, with an equal increase of population and equal increase of products of agriculture.

But this prosperity of the country, (yet far distant, but towards which, however, we will be advanced daily,) would be still much less than in the department of the North, where a hectare nearly supports two inhabitants. And yet they have more than a sixth of their soil in woods, marshes, or unproductive lands: they have, besides, another sixth, and of their best ground, in crops of commerce, which consume a great part of their manure, and which are exported almost entirely. This prodigious result is, without doubt, owing in part to a greater extent of good soil than is found elsewhere; but it is principally owing there, as well as in England, to the regular use of calcareous manures. As we have seen, more than two-thirds of this country [the North] belongs to the class of soils not calcareous, to the argillo-silicious plateaux, and makes use of lime, marl, or ashes of all kinds.

47. After this great result of increased productiveness, that upon health, although applied to the least extent of surface, would be most precious. Upon one-sixth of our country the population is sickly, subject to intermittent and often fatal fevers, and the deaths exceed in number the births. Well! upon this soil without marshes, calcareous manures would bring a growing population, more numerous than that of our now healthy parts of the country—and as labor would offer itself from every side, these rigions, made healthy, would soon be those where the people would be most happy, the richest, and the most rapidly increasing in numbers.

48. If we are not under an illusion, the calcareous principle and its properties upon the soil, form the great compensation accorded by the Supreme Author to man, in condemning him to till the earth. Three-fourths of our soil, seem not to produce, except by force of pain and labor, the vegetables absolutely necessary for man. On all sides, and often beneath the surface so little favored, is found placed the substance necessary to the soil to render it as fertile as the best ground, to enable the cultivator to use for his profit the vegetable mould which it contains and has been accumulating for ages—and to cause the entire soil to be covered by a population active, moral, and well employed. And this precious condiment, this active principle of vegetation, is only needed to be applied in small proportions, to obtain products of which the first harvest often compensates for all the labor and expense. And to complete the benefit, insalubrity, which afflicts the infertile soil, disappears; the new population finds there at the same time strength, riches, and health. There, without doubt, is one of the most happy harmonies of the creation, one of the greatest blessings with which the Supreme Author has endowed the laborious man who is devoted to the cultivation of the earth.

Young Men's Department.

HINTS TO YOUNG FARMERS.

I don't know a principle more important to be cherished, by all ages and conditions, than an habitual reliance, under Providence, on one's own exertions, for the comforts and enjoyments of life, and the respect and good will of society. Stimulated by this principle, and governed by a rigid adherence to honesty and virtue, the mind and body are kept in healthful exercise, and the best faculties of our nature are called into action. How many of our first men have earned a name for usefulness, and risen from poverty to wealth, by the practice of this salutary rule. And how many others can we recognize, who have sunk into indolence and vice, and lost the dignity of freemen, from the want of its vivifying influence—from a slothful dependance upon patrimonial or public aid, for a character and for subsistence. Wealthy parents are apt to forget, and their sons often do not learn to appreciate, till too late, the importance of those habits in youth which can alone secure comfort and respectability in manhood. Neither our fortunes nor virtues are likely to descend, unaccompanied by the habits which procured and established them, as patrimonies to our children.

The mutability of fortune is thus beautifully described, I may say drawn, by the pen of Kennedy, in his late address before the American Institute:

"Our country is a country of busy men. Whatever gives facility and expansion to labor, benefits every class of the community. Unlike the European States, we have no piles of hoarded wealth to be transmitted in mass to our posterity. Opulence, among us, is a gilded pyramid that stands upon a pedestal of ice, and its foundations are perpetually melting in the sun:—the stream that flows from them may fertilize the land, and may spread bloom and beauty over barren places; but the pyramid itself falls in its appointed time, to be built up again by other hands and to adorn other sites. Our laws, which forbid the accumulation of hereditary treasure, have reiterated to the American citizen, that 'sad sentence of an ancient date,'—that, 'like an Emmet, he must ever moil,'—and they have promised to labor fulness of honors. In providing, therefore, for the industry of posterity, we but hew out for ourselves and our posterity a better and more auspicious destiny."

Frank Stevens was the youngest of seven sons, whose common father was considered a man of some fortune, and he belonged withal to one of the learned professions. The elder boys, left pretty much to their own guidance, grew up in habits of indolence, and failed to raise, upon a good farm, the necessary provisions for the family. Frank, finding himself taxed with all the chores, and most of the labor on the farm, resolved to *take care of himself.* With this view he applied, at 14, to be put to a trade; and although rather humiliating to family pride, he succeeded in obtaining his parents' consent. From that moment, Frank abandoned all hope of family aid; and resolutely determined to depend on his industry and good conduct alone for success in life. Without detailing his history, it is sufficient to say, that he has been eminently successful; and now enjoys a goodly share of the comforts of life, and of the respect of all who know him. He supported his aged parents during the last years of their lives; and has been the happy instrument of relieving his brothers from pecuniary embarrassment. Frank has often told me, in relating his adventures, that but for the early determination he made, to rely upon himself, he should not now, probably have been with worth a sous, in money or reputation. And he has settled it as a maxim in his own mind, that *a sprout is not likely to do so well, or produce so fine fruit, when left to grow under the shade of its parent tree, as when early removed, and accustomed to depend upon its own roots for nourishment and support.* My observation in life has induced me to believe that Frank's rule is not far from being true.

To the enterprising young farmer and mechanic, the example of Frank Stevens should not be lost. Habits of youth, be they good or be they bad, almost invariably retain an influence through life. The young mind is like a sheet of white paper, on which every one writes his own character, which it is extremely difficult in after times to alter or obliterate. It is the acquisition of knowledge, and the useful application of time, that elevates the civilized above the savage state; and the further we would be from the latter, the greater should be our exertions to be wise and virtuous. The public are ever most disposed to help them who evince an ability to help themselves.

OUR SCHOOL HOUSES.

These humble institutions, standing upon almost every acre of our land, and scattering light in every direction, are the guardians of freedom, and strength of our country. From every one of our one hundred thousand school houses in this republic, there goes forth a stream of light that falls upon, and cheers, and improves, every farm, and workshop, and family hearth, in the neighborhood. The school-house is the former and the nourisher of the mind in the district. It is the place where the farmer, and the mechanic, the mothers receive their education. The school-houses of this state have given our prosperity, our enterprise, and our controlling station among the states. They have made it the "Empire State;" for what are natural facilities unless there is *mind* to take advantage of them. Blow out the light of these institutions—let darkness rest upon the buildings, and we would soon grope our way to the savage state. Shut the door of the school house, and agriculture is forgotten, manufactures cease, and commerce stops. Strike from existence these intellectual fountains, which are daily pouring light and liberty over the land, *and all is night*—the darkness of midnight and barbarism.

Friends of education! to *neglect* these school-houses is as criminal, and shows the same want of patriotism and philanthrophy, as to destroy them. Have you thought of this.—*Common School Assistant.*

Those who have few affairs to attend to are great speakers. The less men think, the more they talk.—*Montesque.* A maxim which, if inculcated in our legislative halls, would greatly shorten their sessions.

Labor relieves us from three great evils, indolence, vice and want. —*Voltaire.*

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. Orville Taylor, and devoted to the improvement of Common Schools and the education of teachers, is published at No. 71 State-street, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 21st Aug. and 20th Sept. inclusive. Numbers under ten not noticed.

Post-Offices.			Post-Offices.			Post-Offices.		
Alton,	Ill.	11	*Garrettsville,	Ots.	27	*Oxford,	Chen.	34
Abingdon,	Va.	22	Goodwinsville.	Michi.	11	Pelham,	N. H.	11
*Bainbridge,	Chen.	30	*Govanstown,	Md.	22	*Peekskill,	West Ches.	34
*Brinkleyville,	N.C.	22	Hambaughs,	Va.	11	Plymouth,	N.C.	11
*Baltimore,	Md.	27	Hackettstown,	N.J.	11	*Princess Anne,	Md.	22
Crowder's creek,	N.C.	11	*Johnson's Springs,	Va,	22	Pine Lake,	Michi.	11
*Cooperstown,	Ots.	35	Jefferson,	Md.	11	Peytonsburgh,	Va.	10
Dover,	Mo.	11	*Keeseville,	Ess.	22	*Plattsburgh,	Clin.	23
*Damascoville,	O.	22	*Lanark,	U.C	30	*Philadelphia,	Pa.	139
*Eugene,	Ia.	101	McNarys,	Ky.	11	*St. Louis,	Mo.	24
Eldredville,	Pa.	11	Montezuma,	Ia.	11	Savannah,	Geo.	10
Front Royal,	Va.	22	Murraysville,	Geo.	11	*Trumanburgh,	Tomp.	34
*Farmington,	Ct.	19	Mecklenburgh,	Ten.	11	Warrenton,	Mis.	11
*Freehold,	N.J.	15	Nine Mile Prairie,	Illi.	11	Wampsville,	Mad.	13
*Glen's Falls,	War.	15	Nixons,	N.C.	11	Variety Mills,	Va.	11
Greece,	Mon.	11	*Oswego,	Osw.	19	Waterford,	Sar.	10

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. Oct. 20.	Boston. Oct. 19.	Philadel'a. Oct. 22.	Baltimore. Oct. 18.
Beans white, bush........	1 25.. 1 50	1 75.. 2 25	..1 75	1 75
Beef, best. cwt...........	5 50.. 6 50	5 50.. 6 00	8 00..9 00	7 00..8 00
Pork, per cwt............	10 00..13 00	12 00..13 00	12 50	8 50..8 75
Butter, fresh, pound, ...	25.. 28	22.. 30	17.. 18	25.. 28
Cheese, pound, ...	8.. 10	8.. 12	10.. 11	
Flour, best, bbl......	9 44..10 00	9 37..10 00	8 00..9 50	9 50..12 0
Grain—Wheat, bushel, ..	1 50.. 1 90	1 98.. 2 00	1 95..2 00	1 40..1 85
Rye, do. ..	1 18.. 1 25	1 15.. 1 20	1 14..1 25	1 02..1 10
Oats, do. ..	50.. 62	60.. 65	40.. 51	50.. 53
Corn, do. ..	1 06.. 1 09	1 05.. 1 25	99..1 01	98..1 02
Seeds—Red Clover, lb...	10.. 11	13.. 14	9.. 11	10
Timothy, bushel,.	2 00.. 2 25	3 00.. 3 12	2 50..3 25	3 00..3 50
Wool—Saxony, fleece, lb.	75.. 80	70.. 75	68.. 75	55.. 68
Merino, lb..... .	55.. 68	60.. 70	60.. 62	48.. 55
1-4 and com. lb...	40.. 50	45.. 65	40.. 55	36.. 40
Sheep, ...	....	1 75.. 2 75		
Cows and Calves,.........	18 00..35 00	23 00..42 50	....	18 0..50 0

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

VOL. III. ALBANY, DECEMBER, 1836.—(67 STATE-STREET.) No. 10.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor*.

TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—GEORGE C. THORBURN and ALEXANDER SMITH, New-York. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

LEGISLATIVE ENCOURAGEMENT TO AGRICULTURE.

We think it is pretty well settled, that the law for distributing, among the several states, the surplus monies which shall remain in the national treasury on the first day of next month, WILL NOT be repealed; and that this state will receive, as her distributive share of the fund, if her legislature do not reject the proffered boon, more than SIX MILLIONS of dollars. The suggestion that this money is to be received in the nature of a loan, to be returned again to the national treasury, we deem fallacious. It is an excess, above the reasonable wants of the government, and if not distributed, it is apprehended, will be uselessly expended. If expended by the states, in education, internal improvements and the encouragement of agriculture, its benefits will be palpable and abiding. We shall at all times be obliged to contribute our share, in one way or another, of the expenses of the general government, even if we decline to take this six millions—and we shall have to contribute no more than our share if we do take them. Hence it admits of no doubt that we ought to take the money. But were it even a loan, to be refunded, the money will be expended, and will have to be paid, directly or indirectly, by the consuming land-holding interest; and it is therefore right, from this consideration alone, that a portion of it should go to increase the value and products of the land.

It is important, therefore, to every class of our citizens, that in the application of these monies, by our legislature, some permanent provision should be made to encourage and improve the labors of agriculture. The present time is full of admonition, which cannot be misapprehended, that the substantial interests of the state are mainly dependant upon her agriculture—that this is in fact the commander, or balance wheel, which controls and regulates all the minor machinery of society. The present high price of every article of farm produce, and our humiliating dependance upon foreign nations for bread stuffs, to avert the evils of famine, should surely teach us the necessity of giving to that great branch of national industry, which feeds and enriches us all, the substantial aid which shall stimulate its exertions, instruct and aid its labors, and multiply its products. Every dollar judiciously applied to this object, will be like seed deposited in a good soil—it will yield its fifty fold and its hundred fold; and the increase will alike add to the wealth and comforts of all—to the rich and the poor—to the merchant, mechanic, manufacturer and farmer. It will benefit all, because all will participate in the general prosperity, which nothing so much promotes as a high state of agricultural improvement.

We will venture to suggest a proposition for public consideration; and we would impress it upon the farming community, and upon all others who may approve of the suggestion, to take immediate steps to memorialize the legislature, and to instruct their representatives, in the matter. The proposition is this, that the legislature be asked to appropriate *two hundred thousand dollars*, or ONE THIRTIETH PART, of the sum which we are expected to receive in January, *for the improvement of agriculture;* and that a portion of this sum, say one half or more, be specially set apart to sustain, for a term of years, county agricultural societies.

We will not now stop to prove the utility of agricultural societies. It would be supererogation. They have won for themselves a reputation for usefulness. They have produced the greatest benefits, to the moral habits as well as to the pecuniary interests, of all communities where they have been well conducted. For proof of this, we refer to Great Britain, to France, to our sister states, and our own state. But they want here, what they receive elsewhere, to develope all their usefulness—the aid and patronage of the government. Massachusetts has adopted a liberal policy in these matters, and experience has demonstrated its wisdom: she gives to her county societies a sum equal to what the inhabitants of each respectively raise for this purpose; and she finds that these gratuities, after fertilizing her soil, and improving the moral condition of her population, flow back to her treasury again in increased volume.

Our remarks upon this subject apply to other states as well as to New-York. There never was so auspicious an opportunity, and such may never again occur, for the farmers to claim from the legislative bodies of our country, that aid, which the interests of agriculture, and of the nation, demand, as the present. They have hitherto obtained little or no direct aid, because they have not asked for it. If the claim is made promptly, and with spirit and unanimity, it will not, it cannot be refused. No time should be lost, therefore; and if our brother journalists would prompt their readers on the subject, we should hope for the best results.

It was resolved, in the last State Agricultural Convention, that another convention should be held at the Capitol, in Albany, on the first Thursday in February next, at 4 oclock P. M. This will afford a favorable opportunity, which we trust will not be lost, of concentrating the public feeling upon this subject; and we hope the importance of the subject will induce a full meeting on that occasion.

CORPORATE ASSOCIATIONS.

We have observed notices of intended applications to the New Jersey legislature, and we presume the like will happen in New-York and other states, for charters for *cultivating the beet*, and manufacturing sugar, *with banking and trust powers; for planting mulberry trees* and fabricating silk, and indeed for almost every purpose that comes within the scope of our national industry.

At no period of our history, and we believe at no period of the world, has the mania for stock companies been so rife, and we may add so alarming, as at the present day. Hardly a new branch of industry can be mentioned, however adapted to individual means and enterprize, which is not immediately monopolized by mammoth chartered associations. We say *monopolized*—for when these associations come in competition with individual effort, the weaker party must either be crushed, or become humiliatingly subservient to the stronger power. Nor does the disparity exist alone in the amount of wealth, and the weight of influence,—the stronger party has a further advantage in its *chartered* privileges, which are not only withheld from the individual, but which absolutely abstract from his natural rights;—as for instance, the individual is amenable to the laws for his honest debts, *to the extent of his entire means;* while the chartered associations *are not* amenable for company debts *beyond their actual investments*, although its members may be worth millions. It is a question worthy of high public consideration, whether a charter should be granted for any object, which an individual, or common partnership, are competent and willing to undertake—and whether they should be granted in any case, where the *public* good does not indisputably demand them. Mankind are disposed to live rather by their wits than by their labor; and when government proffers ready facilities for speculation in stocks, without a manifest counterbalancing public benefit, it feeds some of the worst human passions, and impairs that equality of rights which ever ought to be preserved among the citizens of a free state.

But the multiplication of chartered companies, for trivial or doubtful objects, has an irresistible tendency to unsettle and derange the good order of society—to bring honest industry into discredit, and to foster a spirit of deceptive desperate speculation, which proves the ruin of thousands. Our situation, for the last twenty years, has enabled us to observe the movements, and to scan the motives, which have led to the rapid multiplication of chartered associations among us; and we honestly avow it as our belief, that the motives have been generally those of speculation, with little or no regard or tendency to the public good; and that the means resorted to, to obtain charters, have generally been disingenuous, often dishonest, and sometimes infamous. We admit that the public interests have been greatly promoted by charters for objects of magnitude, requiring great capital. But because *some* are beneficial, it does not follow that *all* are so. Because it requires a concentration of capital, and corporate privileges to dig a canal, or construct a rail-road, neither of which come in competition with individual enterprize, it does not follow, that the like capital and privileges are required to plant the mulberry, or cultivate the beet, which every farmer and gardener can do without corporate powers.

The subject addresses itself to the good sense, and dispassionate consideration of every friend to good order and wholesome laws.—The evil can only be arrested by the mandate of the public will.

ROAD MAKING.

No branch of public improvement is of more importance to the farmer, nor indeed to the community at large, than the bettering of our common roads, particularly those which constitute the main avenues to market. These are the great arteries which transmit life, and vigor, and health, to every part of the business community. Our turnpikes have proved a failure, from a mistaken parsimony in their construction, and their needless multiplication. Rail-roads will do upon the great thoroughfares of commerce and travel; but for the transaction of internal commerce between the great towns and the country, good public roads should have precedence over all others: Because they dispense their benefits to all alike, and exempt us from the mortifying impositions of chartered wealth, and the officious impertinence of a host of subordinate officers. It is upon these public roads that the immense products of our farms are transported, and that we mostly receive in return the foreign commodities which we consume. If it cost the farmer twelve and a half cents per bushel to transport his grain to navigable waters, or to market, upon a bad road, the actual expense would be diminished more than three-fourths if he could quadruple his load upon a good road; for not only would there be a saving in animal power, and other expenses, to this extent, but there would be a further saving in the wear and tear of carriages, and in delays and accidents incident to bad roads. Roads, like the objects of most other expenditure, are cheapest when well made.

The business of road making has hitherto attracted very little of the public attention. Although the construction of roads is as much an art as common trades, and as much of a science as other branches of civil engineering, where good roads are the order of the day; yet with us the superintendence of their construction and repair is entrusted to all professions—to farmers, mechanics, lawyers, &c. who seldom understand much of the art, and know nothing of the science—and who are too often guided by self-interest, or caprice, and often rather mar than mend, the work of their predecessors.

We have derived many of our improvements from Great Britain; and from no country can we draw more useful teachings, in regard to road making, than from her. For although, fifty years ago, her roads were probably not so good as ours now are, wonderful improvements have been made in them during the intervening half century. Her turnpikes, which cover, like a net-work, the surface of her island, are constructed upon the true McAdam plan, of preserving the earthy bed of the road always dry, by an efficient metal or stone covering, and sufficient side drains. Their parish roads are now undergoing a similar improvement. These works, which absorb annually an appropriation of a million and a half pounds sterling, or more than six and a half million of dollars, give employment to the pauper population, and thus remunerate the public, in a measure, for this heavy national burthen. To make our readers acquainted with some of the leading principles which govern, in the business of road-making, in Great Britain, we will state them, in a summary manner, as we find them laid down in the most recent British publications upon this subject, principally from the Farmers' Series of the Library of Useful Knowledge; premising, however, that although they apply mainly to metal covered roads, they are more or less applicable to the construction of all roads, where utility, durability and ultimate economy, are to be studied.

Foundation.—Eminent men differ upon this point; the one party contending that a *pitched* foundation is nescessary to make a substantial and good road; the other, that no pitching is essential.—Pitching, as here used, is a foundation formed of large stones.—The weight of opinion is against their use. The best foundation, the use of large stones being dispensed with, is a substratum kept perfectly dry by proper and effectual drainage. If one substance in road-making be harder than another, the harder substance should be upon the surface, and not at the foundation. To lay the softer upon the harder, must have the effect of sacrificing the inferior material.

Drainage.—All exertion to construct or repair roads is considered unavailing until the bed of the road is freed from water, and secured against its return. Of what service can metal (stone) be when the road is immersed in water. Can it consolidate? Can it form a compact and hard substance, when water is amongst it, consuming as it were its very vitals? To correct and prevent a recurrence of the evil, substantial side ditches should be opened, so as to give a slope of one inch in 24, between the crowns of the road and bottoms. If open drains cannot be made on both sides, owing to the declivity of the surface, under drains should be constructed, with outlets, through the bed of the road to the lower side. And if springs exist in the scite of the road, their water must be concentrated, and conducted off by under drains. When a particular piece of road is observed to be continually heavy, and in a bad state, it is either caused by spring water, or is situated in a flat, from which the water cannot escape. These suggestions should not be lost to us. A principal defect in our roads, is the want of efficient drainage. Wherever water is permitted to remain, either upon the surface or substratum, in wet seasons there will be a slough, and the bed of the road will be entirely broken up.

The substance or thickness of materials.—Without a sufficient depth of consolidated materials, there will not be a resistance equal to the weight which a highway is subject to. There must be weight to resist weight. If the weight of metal forming the substance be of an imperfect quality, more will be required than when sound and clean. In proportion to the quantity of deleterious matter contained in the body (as earth, small gravel, soft stone, &c.) must the thickness be increased. Any matter that is not of a sound nature has no power in road-making, and, therefore, the hard materials alone contained in the roads substance can be calculated upon as possessing the quality to resist weights. Experience has taught, that there can be no real security against a road giving way, taking the year through, unless twelve inches at least of good consolidated materials form the body of a road; and this upon a foundation rendered sound and dry by effectual drainage.

Sort of materials.—Not the *hardest*, but the *toughest* stones, are the best. The first will break, the latter bend. The trappean and basaltic rocks are therefore preferred; then whinstone, dark colored granite and lime-stones.

Preparation and size of materials.—The stone to be employed is first freed from dirt, and then broken so small as to pass through the inch meshes of a wire seive. Some allow the stones to retain the size of two inches, but none larger. The tougher the nature of the material, the smaller the size should be.

Quantity of materials to be laid on at a time.—When a thick coat is laid on, the destruction of the material is very great before it becomes settled or incorporated with the road. The stones will not allow each another to lie quiet, but are continually elbowing one another, and driving their neighbors to the left and right, above and below. This wears off their angular points, produces mud and dirt, and reduces the stones to an angular form, and prevents their uniting and becoming firm. If there be substance enough already on the road, it will never be right to put on more than a stone's thickness at a time. A cubic yard nicely prepared and broken, to a rod superficial, will be quite enough for a coat, and will be found to last as long as double the quantity put on unprepared and in thick layers. There is no grinding to pieces when thus applied; the angles are preserved, and the materials are out of sight and incorporated in a very little time. Each stone becomes fixed directly, and keeps its place, thereby escaping the wear and fretting which occur when they are applied in a thick stratum. On new roads, the covering should be applied in thin coats. As soon as one is imbedded, apply another, until the desired power is obtained.

"To say nothing of the saving in a course of years, by the durability of a road formed under the new system, and which has been found in some cases, even where the traffic is considerable, by the side of a large town, to last for seven years without an additional stone being applied; to say nothing of the saving to the public in wear and tear of horses, carts and tackle; to say nothing of the comfort of travelling a smooth road, and also to say nothing of employment found for the poor; yet a road can be maintained good and perfect for half the sum, under the new system, which under the old, is expended without improvement."

Spreading.—Cause the load to be shot down a short distance from the place upon which you wish the materials to be finally spread; and direct the spreader to cast every shovel full from him equally, all over the surface, and in such a manner as he would do if he were sowing wheat broadcast. The road will then be not thicker in one place than another, and a section will be produced perfect and true.

The writer on the subject of roads, in the Farmers' Series, suggests some alterations in the British road laws, which have a particular bearing upon our condition, and seem well worthy of our consideration. He suggests,

1. That the business of road making and repairing should be entrusted to the authority of a county, and not of a parish; because, first, the *public* interest will govern more, and *private* interest less; and secondly, the limited extent of the funds of a parish will not admit of giving such a salary to a surveyor—an officer there deemed indispensable—*as will secure the services of a person* EDUCATED *in the principles of road management, and otherwise qualified for the office of surveyor*—an office whose duties are here performed by path-masters.

2. That the means for maintaining roads be no longer obtained by statute labor, which is similar to our road assessments—because the law operates in this respect partially, and the time spent by the farmer in paying this tax, is worth more to him than it benefits the public. He recommends that the cartage be done by contract, by which he calculates a saving of 50 per cent. and that the manual labor be judiciously applied under the supervision of a competent engineer.

3. That the surveyor, or manager, be appointed for a longer period than one year, that he may be enabled to carry out a systematic plan of improvement, and give efficacy to his skill and science.

Scraping.—If it is desirable to keep a road dry at the foundation, it must be equally so at the surface.

ROYAL AGRICULTURAL SOCIETY OF FRANCE.

A letter from a correspondent at Paris, gives the following account of this distinguished institution:

"This society publishes yearly one or two volumes of memoirs. The number of corresponding French members is 400: there are from two to four or five in each department of France. The number of *associes ordinaire* (common associates,) who regularly assemble every fortnight, is limited to forty; that of *associes libres* to ten; that of *associes etrangers* (foreign members,) to twenty—to which latter you belong. The king is the protector of the society.—The president and vice-presidents are chosen annually; the secretary is perpetual. The members of the government consult this society on every great question relating to agriculture, and previous to its discussion by the chamber of deputies. The members who attend the meetings, receive a card, which entitles them to a remuneration of five franks (= to 94 cents,) for each sitting. *All the expenses of the society are defrayed by the government.* Prizes are adjudged annually. After their distribution, the members dine together.

"Agriculture is now making great progress in France, by the influence of the corresponding societies of the Royal and Central Agricultural Society, which assemble in the Hotel de Ville of this city."

Corn Stock Fodder.—It is observed by a writer in the Vermont Farmer, and correctly too, we think, that the stocks and shucks of an acre of good corn, well managed, will go as far in keeping neat cattle as the hay cut from the same acre of ground. What we mean by being well managed, is, that the crop be cut at the ground, and immediately stooked, as soon as the grain is glazed—that the corn be picked off as soon as it is sufficiently dried, and the forage, bound, and well stacked or housed,—and that when given out, it be cut and fed to the stock in mangers. If, when fed, it can be steamed, or wet with a weak pickle, and sprinkled with a small matter of ship stuff or bran, all the better. The defects in managing this forage crop are, that either the corn is topped, and the tops left in the field in stooks, or the entire stocks are left to stand, till they are nearly spoilt by the weather,—that they are badly housed, and fed in the yard without cutting. The consequence is, that much of their nutritious matter is dissipated,—that much is often destroyed, and that of what remains eatable, the cattle are only able to consume the leaves, tops and shucks—the main stock being lost, for want of being cut, so that the cattle can masticate it. Our cows and oxen were kept last winter almost wholly upon cut corn stocks, and they were in as good condition in spring as when fed entirely on hay.

NEW HORTICULTURAL WORK.

G. C. Thorburn has just published, in pamphlet form, "*An Outline of the First Principles of Horticulture*, by JOHN LINDLEY, F. R. S., &c., Professor of Botany in the University of London, and Assistant Secretary of the Horticultural Society,"—price twenty-five cents—sold also by W. Thorburn, Albany. We know of no individual better qualified to explain the phenomena of vegetable life, and to separate that part of vegetable physiology which relates to the science of cultivation, from what appertains to pure botany, or to other subjects, than Professor Lindley. Connected as he has been for many years, with the Horticultural Garden of London, and filling with distinguished honor the professor's chair of botany in one of the first universities in the world, his opportunities of studying the science of horticulture have been great. "My intention," says he, "has not been to write a work on the philosophy of horticulture; but simply to point out, in the briefest manner, what the fundamental principles of that philosophy have been ascertained to be." "In the first place," he continues, "a distinction must be drawn between the *art* and the *science* of horticulture; the former teaches the manner, the latter the reasons of cultivation; and it is to the latter only that these propositions apply. Secondly, the plan of this sketch excludes every thing that is merely speculative, or that is incapable of being reduced within certain fixed principles." As agriculture and horticulture are sister arts, and are governed by the same general laws, this little work will be alike serviceable to the farmer, the gardener, and the florist, to all of whom we heartily commend it. We think of publishing the entire treatise in the next volume of the Cultivator, but in the meantime we make an extract, to afford the reader a sample of the work. The figures introduced in parenthesis refer to the paragraphs in which the terms preceding the figures are explained.

"X. SAP.

"260. The fluid matter which is absorbed, either from the earth or from the air, is called sap.

"261. When it first enters a plant it consists of water, holding certain principles, especially carbonic acid, in solution.

"262. These principles chiefly consist of animal or vegetable matter, in a state of decomposition, and are energetic in proportion to their solubility, or tendency to form carbonic acid, by combining with the oxygen of the air.

"263. Sap soon after acquires the nature of mucilage or sugar, and subsequently becomes still further altered by the admixture of such soluble matter as it receives in passing in its route through the alburnum, or newly formed woody tissue, (65.)

"264. And when it reaches the vicinity of the leaves it is attracted into them, and there, having been exposed to light and air, is converted into the secretions peculiar to the species.

"265. It finally, in its altered state, sinks down the bark, whence it is given off laterally, by the medullary rays, and is distributed through the system.

"266. No solid matter whatever can be taken up by the roots; for this reason metals, which in a state of oxydes are poisonous, are perfectly harmless in their metallic state, as mercury; and this is, no doubt, the cause why liquid manure, which contains all the soluble parts of manure in a fluid state, acts with so much more energy than stimulating substances in a solid state.

"267. The cause of the motion of the sap is the attraction of the leaf-buds and leaves.

"268. The leaf-buds, called into growth by the combined action of the increased temperature and light of spring, decompose their carbonic acid, (279) and attract fluid from the tissue immediately below them; the space so caused is filled up by fluid again attracted from below, and thus a motion gradually takes place in the sap from one extremity to the other.

"269. Consequently the motion of the sap takes place first in the branches, and last in the roots.

"270. For this reason a branch of a plant, subjected to a high temperature in winter, will grow, while its stem is exposed to a very low temperature.

"271. But growth under such circumstances will not long be maintained, unless the roots are secured from the reach of frost; for, if frozen, they cannot act, and will, consequently, be unable to replace the sap of which the stem is emptied by the attraction of the buds converted into branches, and by the prespiration of the leaves. (XII.)

"272. Whatever tends to inspissate the sap, such as a dry and heated atmosphere, or an interruption of its rapid flow, or a great decomposition of carbonic acid, by full exposure to light, has the property of causing excessive vigor to be diminished, and flower buds to be produced.

"273. While, on the other hand, whatever tends to dilute the sap, such as a damp atmosphere, a free and uninterrupted circulation, or a great accumulation of oxygen, in consequence of the imperfect decomposition of carbonic acid, has the property of causing excessive rapid growth, and an exclusive production of leaf-buds.

"274. Inspissated or accumulated sap is, therefore, a great cause of fertility.

"275. And thin fluid, not being elaborated, is a great cause of sterility.

"276. The conversion of sap into different kinds of secretion is effected by the combined action of *air*, (XI.) *light*, (XI.) and *temperature*."

Chinese Indigo.—Gen. Tallmadge has just returned from a year's tour upon the old continent; during which he has devoted much time to the collection of facts, &c., to improve our arts and agriculture. His letters, which have been published in the Journal of the American Institute, abound with interesting matters upon these topics. He has brought with him some seeds of a plant called the Chinese Indigo, (the *Poligonum tricitorium* of botanists,) which is extensively employed in China for dying cloth of a beautiful blue or green, and has kindly promised us a portion of them, with a view of giving them a trial in this latitude. This plant is a biennial, grows two feet high, flowers in July and August, and is represented by Loudon as rather tender. But, under the direction of a Russian agricultural society, it has been grown in Georgia and other districts on the northeast borders of the Baltic sea, as cold a climate as ours, chiefly as yet for its seed, with a view of multiplying it, and it is believed will be found adapted to our climate. What comparison it will bear with woad, as a dye weed, the mode of using it as a dye, or of extracting the colouring matter, and the manner of cultivating it, are matters of which we are as yet ignorant.

THE MORUS MULTICAULIS.

A new mode of acclimating this plant to a northern latitude, as practised in Belgium, has been communicated to the Massachusetts Horticultural Society, by a Belgian gentleman. The method is to cut down the plants in autumn, to a few inches above the sod, and to cover the stump with leaves or other matters, and to do this annually, till the roots have acquired size and strength enough to withstand the severity of winter, which is less severe in Belgium than it is with us. The stump sends up shoots in the spring, in proportion to its size, which grow six or eight feet, and afford as abundant a supply of leaves as would a tree upon a single stem, and are much more easily gathered. Any deficiency in product may be made up by planting thicker than for standard trees, as treated in this way the plants may be placed eight to ten feet apart. This mode of culture is successfully practised with the basket willow, not to preserve it from cold, but to enhance the value of its products—the annual shoots are multiplied, and increased in strength, as the root acquires vigor by age. This plan, we believe, is the best that can be adopted here, with the multicaulis.

After all the lauding that this plant has received from journalists and speculators, as being hardy enough for our northern climate, and as affording the best material for ordinary silk culture, the truth is now evidently admitted, that it has neither of these qualities to recommend it;—that it does not withstand our hard winters—and that although it produces the finest, it does not produce the best silk, for common fabrics, and requires peculiar delicacy in its management, illy adapted to common rural labors.

The Osage Orange, (*Maclura aurantica*.)—We have noticed several articles in the public journals, commending the culture of this plant as affording suitable food for the silk worm. We have had this plant in our grounds eight or ten years, and the stems have been invariably killed by the winter. It is more tender than the Morus multicaulis, and is of slow growth; its fruit resembles, in appearance, the black walnut, and is altogether worthless. We state these facts to guard our readers against expending time and money in attempting to cultivate it for feeding silk-worms.

Experiments with ashes, gypsum, lime and salt.—The last Farmer's Register gives us the details of seven experiments, made with mixtures of ashes, leached and unleached, gypsum, lime, &c., applied to corn when planted. The experiments were made on a field embracing forty acres. The different compounds were applied each to five rows, and six other rows were left without any application between each series experimented upon. The compound was dropped, in various proportions, upon the seed before it was covered with earth. "*Not the slightest apparent benefit was derived from any of these experiments.*" Most of the compounds were entirely calcareous, and the reason assigned for their not acting beneficially, is, that the whole field had been already rendered calcareous, by the free use of marl. The experimenter expresses a belief, in which we fully concur, that upon soils deficient in calcareous earth, these applications would have produced a decidedly beneficial effect. Every year's experience teaches the use of scientific knowledge, in determining the qualities and defects of soils, their adaptation to particular crops, and the best modes of increasing their fertility.

THE FARMER'S SCHOOL BOOK,

Is the title of a volume in 12 mo. of 240 pages, just published by J. Orville Taylor, publisher of the Common School Assistant, and is one of a series of small volumes which he is publishing, designed as reading books in common schools. Price 44 cents. It is a good book, calculated to instruct the boy, and to implant in his mind the seeds of knowledge and usefulness. If it is proper for boys to learn "those things which they expect to do when they are men," and of this no one will express a doubt, nothing can be more proper to be put into the hands of those who are soon to become farmers—(if the speculating mania should in time abate) than a book which teaches them the properties and laws of organic and inorganic matter—which not only instructs them in their future *business* of life, but tends to qualify them for the higher *duties* of society, which will tend to make them intelligent, and useful and good men. Such is the character of the work of which we are speaking. An effort is now making to "bend the twig" as it *should* grow, by providing for our common schools, and common school libraries, in a cheap form, a selection of books, calculated to make our sons wiser, and we trust better, than their fathers. The effort is a noble one, and those engaged in it deserve the commendation, and the co-operation, of every friend to civil liberty.

The Peach Worm.—Dr. Scott has furnished us, in the *Plough Boy*, with a description of the habits of the insect which attacks the peach tree, about the surface of the ground, and often fatally. The egg is deposited by a large fly, in July, which pierces the outer bark; it soon hatches, and proceeds always towards the root, through the green or inner bark, until checked by the cold of winter. Its presence is indicated by the gum which exudes near or at the surface of the ground. The worm resumes its depredations in the spring, and emerges, a perfect insect, late in June, or early in July. The doctor's remedy is, to put ashes about the collar, or lower part of the stock, and particularly in the spring. The worm is then below the surface, and the rain which percolates through the ashes, becomes a ley, which settling into the worm hole, destroys the insect. Whatever prevents the eggs being deposited near the surface, as covering the lower part of the stock with straw in the spring, so that the frosts of winter may destroy the insects ere they penetrate the ground—or whatever will destroy the worm when under the ground, as the alkali of lime, ashes, &c. will preserve the peach tree from the depredations of this insect.

FOREIGN WHEAT.

There was imported, to the port of Baltimore alone, between the first of January and first of November of the current year, 164,408 bushels of foreign wheat, and an equal amount, probably, to the ports of New-York and Philadelphia. It may be deemed good fortune that these supplies of foreign bread stuffs have come to our timely aid; but it is bad fortune that we need them. The calamities resulting from bad seasons, though not to be averted, may be sensibly lessened, by intelligent industry and forethought; and the fact that a nation of farmers are now in a measure dependant upon foreign countries for bread, should humble us, and admonish us, that we lack either in intelligence to guide our labors, or have not applied the latter with sufficient diligence.

Great sale of Short Horn cattle.—The Ohio Company for importing English cattle, sold off their stock on the 29th ult., consisting of about 50 head. 21 bulls brought an average price of $824—the highest selling at $1505; 22 cows, some of them with calves, sold at a little higher average, one of them, with her calf, being bid in at $2225. This sale is unprecedented, we believe, for high prices, in any part of our country, and speaks greatly in praise of improved short horns.

Chinese Mulberry trees.—We find in one page of the Silk Culturist, the following quantities of this tree advertised, as also about two millions of plants of the white Italian mulberry. Truly we are a *propagating* people.

75,000	by W. G. Comstock, Hartford.
50,000	do. do.
100,000	by W. Prince & Son, Flushing.
75,000	by W. Kenrick, near Boston.
20,000	by A. Row, near Rochester.
320,000	

and a great many thousands more by D. Stebbins of Northampton, Mass. C. B. Mallory, Westfield, Thomas J. Bestor, Suffield, and Joseph Davenport of Colerain. Now allowing each plant to occupy a space of three feet by one, which is the fair nursery distance, 320,000 multicaulis trees would fill, in nursery order, about 40 acres, which would average to the five proprietors, eight acres each; and if planted in orchards, at 15 feet apart, would fill 1660 acres.—The 2,000,000 white Italian would plant, at the same distance, something more than 10,000 acres. We seem in a fair way to have at least mulberry trees.

TO CORRESPONDENTS.

J. L. Davison, of Groveland, Ill. is referred, for a figure and description of a Cultivator, to page 49, vol. 2. We expect soon to give a figure and description of Bement's Cultivator. We shall be glad to obtain the result of Mr. D.'s experiments.

A correspondent, who signs "Orange County," writes us, as the result of his observation, "that where sward is ploughed early in the spring, and permitted to remain for a length of time before planting, the first and second, and sometimes the third crop, is entirely cut off by the grub; and that where the sward is turned over late in the spring, and immediately planted, and the grass is permitted to grow up with the corn, it generally escapes the ravages of the grub." The inference that we draw from the fact is, that sward abounds more with the grub than tilled ground; the worms find abundance of food in the grasses; and that where the sward is in a fresh or green state, they prefer it, and the corn crop thus escapes.

R. W. D. who dates from Chatham, is referred to page 50, vol. 2, for a list of agricultural books most deserving his notico The maple, white ash or chesnut are adapted to his hill planting—or tho apple, to feed his swine and stock.

T. C. of Lewis, N. J. wishes instructions for fining cider. Will some cider-making correspondent give them? We can only refer him to our article, on cider, in No. 7, vol. 2, of the Cultivator.

Abel Hoyt, of Elkland, Pa. ascribes the failure of the seed corn, last spring, which it seems was a general complaint in the northern states, to the germinating principle having been destroyed by frost, before the cob, and consequently the germ of the grain, had become dry; severe cold having intervened in most cases before the crop was housed, and preceded by a damp muggy atmosphere. The pest that Mr. H. describes, is the quick or quack grass, a variety of the *agrostis stolonifera.* It generally disappears on being pastured four or five years. We do not think trench ploughing would eradicate it.—The common method of subduing it in tillage lands, is to summer fallow, to collect the stollens or roots with harrows and rakes, and to dry and burn them, or to feed them to neat cattle, who devour them greedily.

The letter of Mr. Hawley, inserted under Correspondenco, was addressed to a respected friend, who kindly lent it to us for publication. It was inadvertently omitted in our last.

Winter Melons.—We tender our thanks to James Mather of New-York, for a brace of winter melons, imported from Spain, the quality and excellence of which we shall be better able to judge of *next year*, when we purpose to taste thom. These melons are raised in Spain, and great quantities are exported to England by steam-boats. They are said to eat well, though probably inferior to the finer kinds which are in eating in August and September. If not found to grow well in this latitude, they will undoubtedly prosper in the south.—They are often kept sound till March.

The Autumn Marrow, which was kindly sent us by John M. Ives, of Salem, Mass. is all he describes it—the best autumn squash we have eaton—when boiled (the way we tried it,) with pot-luck. Mr. Ives will please accept our thanks. A portion of the seeds of tho melons and squash will be distributed among horticultural amateurs.

Our young correspondent "*Franklin,*" must excuse us for not answering his queries upon self-instruction. The answers might require a volume, and at present we should not have time to condense them. He will find most of his queries solved in the biographies of Franklin, Fulton, Roger Sherman, Ferguson, Herschell, and other self-taught men. *They* have left a rich legacy, in their example, for all young men who aspire to wisdom and usefulness.—We commend the spirit which prompted the inquiry; and if persevered in and nurtured, it will tend to make our young friend a good if not a great man.

Mr. John Low, of Milford, has sent us a drawing of a machine for pressing cheese, washing and churning, which consists of a spring pole, disposed diagonally, and put in motion by a tread-board, operated upon by children or other persons. If a sight of the machine should justify Mr. Low's high opinion of it, we should he induced to have a cut of it made for the Cultivator. The drawing is too crude for a copy. Mr. Low commends his mode of making butter. He keeps his milk in a cool cellar, skims it when clotted, and when the butter begins to separate in the churn, he washes down the inside of the churn and throws in a few quarts of cold spring water. The butter is salted and worked when it comes from the churn, set by till next day, and then reworked, salt-petre and loaf sugar added, the mass deposited in the firkin, and covered with salt, or with a strong brine. No hot water is ever used. He makes his winter butter with the assistance of an iron hearth in his kitchen fire-place, under which a current of air is heated, which passes to his milk-room, and imparts to it a proper temperature.

Silk Spinner.—Adam Brooks, of South Scituate, Mass. a member of the society of Friends, writes us that he has invented a silk spinner, which spins perfectly well, directly from the cocoons, and that he manufactures them on a small scale, for family use, and also of a larger size, for manufactories. We see by the Maine Farmer, that Mr. Brooks exhibited his spinner, in operation, at the fair of the Kennebec County Agricultural Society, and that he received an honorary premium for it. The spinner is spoken of by the Maine Farmer, as being a very valuable improvement. Mr. Brooks proposes to exhibit his machine at Albany, and asks our opinion as to the proper time. We advise him to exhibit here on the first days of February, as the State Agricultural and Medical Societies convene then, and the Agricultural Convention, should one assemble agreeable to resolution. As regards tho latter part of Mr. Brooks' letter, we can offer him very little encouragement.

CORRESPONDENCE.

Alton, (*Ill.*) *October* 10, 1836.

Dear Sir,—Through your kind agency, as I presume, I received the August number of the Cultivator, and the September number of the Common School Assistant, for which I thank you. I deem both of great value, each in its department.

My time has been so closely occupied since I received them, that I have been unable to bestow much thought on the various and interesting subjects of which they treat, and the few observations that I shall take the liberty to make at present, will be confined to two articles in the Cultivator, viz: that which relates to beet sugar, and that in which *agriculture* is spoken of as an *art*, a *trade*, and a *science*. Since I had the pleasure of conversing with you last May relative to beet sugar, and viewing the very fine specimen which you were so kind as to exhibit to me, I have thought much on the subject, and have availed myself of every opportunity that has occurred, (which have been few,) to obtain information on the subject, and cannot doubt for a moment, that the manufacture of sugar from the beet is to be the means of enlarging the boundaries of American agriculture, and increasing the resources of our country to an immense extent. Sugar, although it cannot perhaps be said to be the staff of life, may, I think, without any impropriety, be considered the staple of it; it enters innocently into a thousand combinations for culinary purposes, and I believe it may be laid down as a general rule, that a fondness for sugar in its simple and untortured state, and for those articles of food in which it predominates as a part, creates a distaste for alcohol, or what may be termed the *evil spirit* of sugar. The general impression among those who are obliged to economise closely, is, that the article of sugar should be used very sparingly, and perhaps if we take into consideration the price at which the article is sold in the interior portions of our country, that view of the subject may be correct. It may be necessary to consider it rather as a luxury than an article which constitutes a part of ordinary food; but suppose a house-keeper could purchase, or produce a pound of sugar as cheaply as a pound of beef, or other meat, would not the former be substituted for the latter to a great extent? Would not the sugar, suitably combined with the fruits, both native and cultivated, that so much abound in our country, really constitute a greater portion of nutrition, and is not the combination of sugar and fruits, eagerly sought, and devoured with avidity, as a luxury? May not that which is now deemed a luxury, be enjoyed to any reasonable extent, if the beet will produce sugar to the amount, and with the facility we have every reason to believe it will, from demonstrations which have already been made? On my part, I promise you that I will use every effort in my power to aid in developing this subject, and as I am practically acquainted with the culture of the beet on a pretty large scale, so soon as I can obtain the right kind of seed, and the necessary information as to the process of making the sugar, will ascertain the result of a trial.

In our conversation on the subject, if I am not mistaken, you informed me that the kind of beet of which the sugar is made, is mangel wortzel, or scarcity root; but it appears by a letter addressed by Mr. Iznard to the Massachusetts Agricultural Society, which you have, no doubt, seen, that the variety of beet cultivated for sugar, is the white beet, (Beta Alba.) I mention these circumstances as I wish to obtain the seed of the true kind as early as possible, and am desirous that there should be no error. Having said much more than I intended on the subject of beet sugar, I will not tax your patience by extending my observations on the other subject adverted to. Permit me to say, however, that nothing can be more correct, profound, or judicious, than the remarks contained in that article. I have long thought that the combinations there spoken of, were essential to constitute a good cultivator. An immense amount of labor is saved in agriculture by a union of art, manual skill or dexterity and science; the products of the earth are yielded in tripple fold, to the individual who has a thorough knowledge of all the elements that operate upon, and enter into, the various products upon which he bestows his care and labor, and who knows when, how and where to bestow what physical strength is necessary to produce a given result. I have long thought also, that the knowledge of agriculture should constitute a distinct branch of education in all our principal institutions of learning. The truth is, agriculture is the basis of nearly all the wealth in this country; it enters largely, directly or indirectly, into every department of business, and it is the business of those who constitute the great majority of the freemen of the United States; and there is every motive for giving it the highest rank among the various occupations which nourish, and sustain, and adorn civilized life.

I enclose five dollars, which you will be kind enough to hand to the editor of the Cultivator, with a request that he will send me the numbers agreeably to his terms. H. HAWLEY.

CULTURE OF COTTON.

J. Buel—Dear Sir—Having recently become a subscriber to your very valuable publication the "Cultivator," and deeming it highly incumbent upon each subscriber, to contribute his "quota" of agricultural information towards promoting the end of your publication, I send you the following as the most generally adopted mode of cultivating cotton in North Carolina. The land is "bedded," or broken up as soon after picking out as possible, (the earlier the better) with a plough drawn by two horses. The beds are from 3½ to 4 feet wide. After the earth has settled, and become somewhat indurated through the influence of rains and the sun, a double horse harrow is applied to the ridges, succeeded immediately by a smaller one, which reduces the land to a perfect state of pulverization.—Next follows the "marker," drawn by one horse, which makes a small trench on the middle of the ridge, in which the seed are strewn by hand. The seeds are rubbed, previous to planting, in ashes and water, which process embodies three distinct advantages. 1. It enables each seed to assume a separate position when sown. 2. It acts as a stimulant upon the plant—and 3d. It checks the ravages of that destructive insect the "cut-worm." The seeds are covered very lightly, say from 1 to 1½ inches, by means of a small harrow of 6 or 8 teeth. Next in order is the process of "shaving," which consists in applying the weeding-hoe to each side of the cotton on the ridge; after which the bar of a single-horse plough is run at such a distance from the cotton as will not disturb its lateral roots, by which, all the grass that is taken from the vicinity of the plant is entirely covered in the middle of the alley or water-furrow. About 8 or 10 days subsequent to this, (the grass being completely dead) a triangular harrow is run upon the list formed by the two furrows thrown *from* the cotton, and two furrows thrown *to* the cotton, by means of a small plough. I forgot to state above, that immediately after "shaving and barring," the cotton is chopped through by the weeding-hoe, at intervals of 8 or 10 inches, and the most promising and luxuriant stalks selected, leaving from one to two in a hill. Next follows the "dirting process," as it is termed, which by some is done with the hand, by others with the hoe. The former mode is too laborious, and far from being the most *effectual* and *expeditious*. When the cotton has attained a considerable height, the bar is run very *shallow*, and the plough is run *deep*, when the mould-board is turned to the cotton, to prevent "*firing*." The cultivation then is perfected by alternately "barring" and turning the mould-board to the cotton, immediately followed by the hoes, for the purpose of more effectually dirting the cotton, and uncovering those branches which the mould-board may have covered. Some of my neighbors "top" their cotton; they think it causes the plant to expand more, and form more pods. I should like to see in your next number a description of the "Cultivator,"* which you recommend to your readers, as entirely superceding the necessity of the plough and hoe in the cultivation of Indian corn, together with a detail of the best method of cultivating that article.†

With unfeigned respect, I am yours,

North Carolina, 1*st Nov.* 1836. AGRICOLA.

SHEEP HUSBANDRY.

Sir—Much has been said on the different breeds of Sheep, and much more is required to induce farmers to improve their flocks.—I am perfectly satisfied from personal observation, that an erroneous system is pursued in the management of these valuable animals, and am thoroughly convinced that the generality of farmers do not know their true value; but in directing their attention altogether to the fineness of wool, such as that produced from the Saxony and Merino, (and in these cases being generally governed by the quality without a due regard to the quantity,) they seldom take into consideration the carcase, which should be the most profitable, and in a good breed of sheep will prove so. Though I am not sufficiently sanguine to believe my opinion to be infallible, still I think I may advance some ideas, that better judgment can improve and excite its endeavors, where it is now silent. Should I succeed, the benefit the farmer will derive from it will afford me ample recompense.

In the first place, I cannot see why the Saxony and Merino sheep are more generally kept than any other breed, their quality of mutton being, in my opinion, far inferior, and their carcase lighter and more shapeless. I have asked many farmers who raised them, what was their inducement for doing so, and have found no other reason assigned than the fineness of their wool. They generally keep their wether sheep five or six years, as they produce the greatest quantity and the finest quality, though they seldom cut more than three or four pounds, and often less than two and a half, and this comprises their chief profit. They frequently lose them, in consequence of their weak constitution, and their inability to stand the hard winters. If I am mistaken in these sheep, I shall be much obliged to some experienced breeder of this kind, to correct me, and advance the credit they deserve, and do justice to their good qualities.

I think the South Down is a more profitable breed. Their quality of mutton is very superior; they feed much faster, but more inside than out, and are of a more hardy nature, if not bred too fine. I conceive the Hampshire Downs to be more profitable than the South Downs, and of a stronger constitution. They will produce more mutton and wool, and about equal in quality.

The Bakewell or Cotswold sheep, I value more highly than either. They will produce more wool and mutton than any other sheep, and feed faster, (i. e. fatten sooner,) the quantity will make up the deficiency in quality, and give them the decided preference. On these sheep a man can exercise his judgment, as they possess every point sheep can, when good ones and well bred.

There is as much difference in the same breed of sheep as between two distinct breeds, and it requires a farmer's most attentive judgment in every point, to enable him to select a good ram. There is more nicety in selecting this animal, than the farmer generally imagines, and if done injudiciously, his flock is certain to degenerate. If the male is not well bred, his stock is sure to be uneven; in some instances, when the ewe is well descended, her lamb may prove good, but the descendants of that lamb, if put to an ill-bred sheep, are certain to grow worse, and I am sorry to say, this system is too frequently pursued. It would be much better for a farmer to give a high price for a well bred sheep, than have a poor one for nothing. Let them be influenced by this spirit, and they will find the benefit of it. Those farmers that pursue the former course, are doing their country great injustice, and injure those breeders who study to improve. I have seen, in many instances, flocks of sheep descended from well bred ones, so much degenerated by this system, that a good judge could scarcely tell to what breed they belonged, and the owner, when offering them for sale, would represent them as first rate sheep, and bred from the flock of a noted breeder. As long as this principle is sanctioned, there will be no excitement to improve, as it is discouraging to a good breeder to meet with such treatment, when he has been earnestly striving to excel. I appeal to sense and reason, whether there is any encouragement for a superior breeder, in such a case. Another practice I know exists, of men going to vessels, as they arrive from Europe, and buying the remainder of the captain's ewes, perhaps the culls of a flock of no note, and introduced here as imported sheep, from a good flock; and among many farmers, the name of an imported sheep is quite sufficient, and they do not examine the good and bad points they possess; but if he is large and looks well to the eye, it is quite satisfactory; and this is a very mistaken notion. The eye cannot accurately tell a good sheep from a bad one; a fine looking sheep often when examined by the hand, proves exactly opposite from expectation.

---

* See notes to correspondents.

† Having already published two articles of our own on this subject, p. 37, vol. 1, and p. 2, vol. 2, we beg leave to refer to them as affording an exposition of our views on the cultivation of corn.—*Cond.*

Here I cannot avoid mentioning a circumstance that came under my observation, of rather a laughable nature. A farmer, in selecting a ram, had three or four put together, and stooped down to see which was the tallest; his decision was expressed in the following words—*I think this is the tallest sheep; I will take him*—and according to my judgment, he selected the worst sheep in the lot. Though I thus state my opinion candidly, I do not mean to do so offensively, as it is my earnest wish to see the farmer prosper, and any thing I can do to promote his happiness and welfare, will always be to me a gratification.

Having condemned the system pursued, I will advance one that, in my judgment, would answer better. I would purchase as many ewes as I thought my farm would support, of that breed my taste dictated, and they should be the best my judgment could procure, and my purse sanction. I would then purchase the best ram of the same breed, I could possibly meet with, and lose no time in search of him; when once procured, he would serve for the same ewes three or four years, till his own stock came into the flock; and if a high price is paid for him, and his life spared, he will be sure to earn it. I am undecided whether I should sell my wether lambs, or keep them till two years old, but should be governed by my means of keeping. I would wean my lambs about the middle of July, keep the ewes, ewe lambs and wethers separate, and as soon as the ewe lambs were fit to take the ram, (which would be in eighteen months,) would procure a good ram for them that was no relation, and then select as many of the worst as I thought proper, and take as many of the worst of my ewes as I put of the best yearlings in, and sell them to such farmers as I thought would do them justice. Though the worst, let them be attentive, and they will improve; but I would always have them leave in lamb, so that the first descendants might be genuine. When a farmer has pursued this course a few years, his whole flock will be nearly equal, and when arrived to this purity, is worthy to be called a good one; and if his land and mind are cultivated equally well, he may be one of the happiest beings on earth, and ought to be much respected.

I will refer those who wish to see good flocks, to some I have seen:—Mr. Roach, of Butternuts, has a flock of superior South Downs, and according to my judgment, are selected with care, and from a first rate flock. Mr. Bement, Three Hills Farm, near Albany, has a flock of Hampshire Downs, that I think very good, and well descended. Mr. Adcock, of Gilbertsville, has a flock of Cotswold or Bakewells, that I think superior; and Mr. Dunn, of Albany, a flock of the same kind, that I think well bred and very superior, and still improving, as the sheep he was using this season weighed 296 pounds, and every point equal in proportion. These flocks I think worthy the farmer's notice, and I would advise those who study to improve theirs, to go and examine for themselves. There may be others that deserve credit, but they have not come under my observation.

One thing I would advise all breeders to be cautious in, and that is, to keep their breeds distinct, and if two breeds are kept on one farm, it is almost impossible to do so. Should any person wish to argue the point, I shall be most happy and pleased to do it.

I am, sir, yours respectfully, A SUBSCRIBER.

St. Luke's, S. C. Nov. 5th, 1836.

Jesse Buel, Esq—Dear Sir—I am in receipt of your letter of the 14th ult. in answer to my inquiry for an agricultural school for boys, for which please accept my hearty thanks. I had previously noticed in one of the numbers of the Cultivator the charter obtained for a school, which meets my views decidedly, and I trust it will not be limited to your state, but open to students from all parts of the union. The prospect of such a school, and under the patronage and direction of men so ably calculated to prosper its first efforts, almost renews ones youth, and makes me wish, in spite of years, to enter as a student. Every idle moment is employed in reading over the numbers of the Cultivator, all of which came safely to hand a few days since. It is without doubt the most valuable work of the kind published in this country. I consider each number worth the fifty cents, and trust before the coming year expires it will save me fifty dollars, if not five hundred.

Being a novice in agriculture, I feel rather diffident in asking questions; I shall not therefore consider it neglect if in your own good judgment you throw them aside as trifling.

My compost heap is composed of leaves and litter from the woods, scraped up with hoes, in which more or less of the surface soil is mixed—scrapings from the yard, litter from the stables, poultry houses, hog pens, kitchen, &c.—green marsh, dry sedge, and salt clay mud, all of which are spread in even layers, in order to have the heap as near alike throughout as possible, and this nightly trod by cattle. Now I have been in the habit of burning a lime kiln from oyster shells, and spreading the lime over the heap previous to carting into the field. This was from the conclusion that the land on which it was to be applied was destitute of calcareous matter, and as the lime would not be over two to three bushels per acre, it was more evenly and expeditiously spread by mixing with the general heap.—The heap accumulates gradually to between 2½ to 3 feet in thickness, over a surface of one fourth of an acre; the lime is evenly spread over this, (and by being exposed to air and dew, probably looses some of its caustic qualities) and the whole mass chopped and thoroughly mixed by hand for the purpose, and carted into the field; as soon as hands can conveniently follow, it is spread in the trench, and the ground listed over it as is usual in our ridge system in the culture of Sea Island Cotton. The land to which it is applied, is a high, dry, pine, barren ridge, the growth was pine, with black jack, red oak and hickory shrubs, and had been kept clean by frequent burnings—the soil thin, of a yellow cast inclining to grey on the sides, and being a striking resemblance to the light lands near Saratoga; sub-soil yellow and dark brown sand. Now whilst one neighbor objects to the lime altogether, another objects to the manner of its application. Can you settle the controversy? When I say to you that this field has been planted six years out of seven in Sea Island Cotton; that my neighbors laughed at my folly and ignorance when I cut and cleared it for cultivation; that under so harsh as system it has gradually improved and paid per acre the last year (gross sale) sixty-five dollars, you will no doubt think it a substantial test, and another proof of the great advantages to be derived from a steady, if not a judicious application of manure. We are called upon in justice to others to relate our mishaps, as well as our successful experiments in agriculture. Mine are pretty numerous on both sides, but as I can claim but one millionth part of your time, and finding my letter already spun beyond what was intended, I will venture only on one.

Finding an insufficiency of manure, and desirous of putting forth my best exertions for a crop, I collected together in the fall a considerable body of sedge. Laying a floor of this, I then strewed on pretty heavily, cotton seed, then another layer of green marsh, cut for the purpose, then seed, and so on alternately for six feet in height, on the top of which I threw sundry buckets of salt water. In the month of February, I found on examination, the heap but very partially changed. I then turned in with hands and hoes, chopped it and turned it completely over, then commenced a new heap with alternate layers of this and a hog pen heap composed of corn cobs and litter, and which was pretty well decomposed—taking care to throw buckets of salt water on each layer, that there might be no want of moisture to produce fermentation, over which was spread a layer of thick salt marsh sods. In a few weeks the stench arising from this heap was almost beyond bearing; and fearful it might lead to sickness, it was carted as fast as possible into the field, spread and covered without a day's exposure, in order to retain as much of the gas as possible. Some part of the field was spread under, and the other on the list, and bedded for planting in the usual manner. The cotton came up well, was well tended, and produced—suffice it to say, that if in my ardor I valued the compost at $500—the field scarcely produced that amount. Whilst to have been a good turn out, it ought to have yielded four times that. The season was a fair one, and lands unmanured turned out well. Whether the failure was owing to planting the seed too shallow on the top of a good sized bed[*]—to misapplication of the manure, or both, I am not prepared to say. It is my intention the succeeding year to make some pretty thorough experiments in manuring, which shall be forth coming, if successful.

Is it not possible to obtain from Buel & Wilson, or through your enterprising friend Bement, or through any agency suggested by you, such articles as we may occasionally want in the way of implements of husbandry, ploughs, cultivators, &c., fruit trees, garden seeds, &c. &c. I have suggested to my neighbors, the articles might probably be depended on as to quality from such a source.—Perhaps they may have an agency in Savannah, through which we might obtain them. The cultivators I have been able to get here are of very little account—and Freeborn's ploughs, much in use here, are now so slightly made as to be almost worthless—and thus many depend on the hoe and the shovel plough.

What objections to mixing lime with compost heaps, composed as above? if objectionable, and yet no calcareous matter in the soil, was it not better to apply thus than not at all? What are the component parts of Sea water? Would compost heaps be much improved by saturation with it? What experience have you had with salt as a manure? Is the refuse water from salt vats of any importance in agriculture?

Most respectfully your obedient servant,
N. P. CROWELL.

ANSWERS TO MR. CROWELL'S QUERIES.

Quick-lime, in small quantities, is probably beneficial in composts, particularly where there is much coarse or ligneous matter,—and mild lime, or carbonate, in larger proportions, is undoubtedly beneficial. Sea-water contains, 1, common salt, composed of soda and muriatic acid; 2, a saline substance, composed of marine acid and magnesian earth, denominated salitcal magnesia; and 3, a small fraction of gypsum. We have had no experience with sea-water or salt as manures. They have produced good effects upon some soils, when applied in moderate portions; but an overdose, as we suspect was the case in the sedge and cotton seed compost, is always prejudicial. It retards, instead of accellerating, vegetable decomposition, and may form insoluble compounds with matters otherwise beneficial to crops. Order for trees and plants may be addressed to Buel and Wilson—for seeds and implements to W. Thorburn, Albany.

EXTRACTS.

GOVERNOR EVERETT'S OPINIONS OF AGRICULTURE, AGRICULTURISTS, AGRICULTURAL SOCIETIES, AND OF THE EDUCATION OF AGRICULTURISTS.

The Salem Gazette gives the following sketch of the remarks of Gov. Everett at the Essex Cattle show.

After the report of the committee of arrangements had been read, Gov. Everett rose and made his acknowledgments to the committee for the manner in which they had alluded to the circumstance of his being present. He expressed his gratification at the exhibition of the day; and his confidence that the bounty of the state was beneficially applied by the Essex Agricultural Society. He stated that the wish had been expressed that he should address the audience. He felt that in complying with the request, he stepped beyond the line of usage on such occasions, but he trusted the responsibility of his doing so would be considered as resting with the committee, by whom the wish had been expressed.

The Gov. added, that he felt additional embarrassment in following the orator, who in his very able and interesting discourse, had anticipated many of the general remarks appropriate to such an occasion. His only effort could now be, to subjoin a few observations, so simple as to present themselves without research, and he hoped important enough to bear a repetition, should it happen, as was very probable, that they had been already made by the orator of the day.

After some remarks on the nature and objects of cattle-shows, and their beneficial influence on the state of the husbandry of this part of the country, Governor Everett proceeded substantially as follows:

The benefit which has accrued to our farmers from these exhibitions cannot be estimated in dollars and cents, or measured by the figures employed to state an increase of agricultural products. A few more tons of hay from your meadows; a few more bushels of corn or potatoes from your tilled lands; a better stock of animals for the dairy, the fold, or the pen, would add something, it is true, to the public and private wealth of the community; but if nothing farther came of it, it would be a matter, in which neither the patriot nor the christian could take a deep interest.

But when we consider, that the class of husbandmen is numerically the largest in the community; and that in their condition it has been found, in the experience of the whole world, that the social, political, and moral characters of countries mainly depends, it follows as self-evident, that whatever improves the situation of the farmer, feeds the life-springs of the national character. In proportion as our husbandmen prosper, they not only enjoy themselves a larger portion of the blessings of life, but society is kept in a healthy state, and they are enabled to make ampler provisions for the education and establishment of their children and thus leave behind them a posterity competent not only to preserve and assert, but to augment their heritage.

It will accordingly be found, that the great differences in the political condition of different countries coincide directly with the different tenures on which the land is held and cultivated. It is not that in one country the government is administered by an elective president; in another by a limited monarch; in another by an absolute despot. These things are not unimportant; because forms have a tendency to draw the substance after them. But a far more important question, in deciding the political condition of different countries is, *how is the land held?* The orator has told us what is the case in many parts of Europe; but there are countries, where the land,—the whole of it,—is claimed to be the property of an absolute despot, rather a chief of brigands than a sovereign,—who once or twice a year sends out his armed hordes to scour the territory: to sweep together, without the shadow of law or pretence of right, whatever they can lay their hands on; leaving the wretched peasant little else than what he actually grasps with his teeth. Such is the system introduced into some parts of Hindostan by their Mahometan conquerors, and it has had the effect of breaking down the civilization of countries once refined, learned, wealthy, and prosperous, into a condition very little better than that of the North American savage. Contrast this with the system on which our lands are held and occupied, in pusuance of which, as a general rule, it is divided into small farms, the property of those who till them, who have every inducement and facility to better their condition, and who feel themselves on an equality with their fellow citizens in every other pursuit. It is plain, that over such a population, no government could exist, but one like that beneath which we live, in which the people are the direct source of power. Where this is the case, it is equally plain, that whatever improves and raises the condition of husbandmen, tends directly to sustain and fortify the social fabric.

A very celebrated ancient poet exclaimed, "Oh too happy farmers, did you but know your blessings." If this could be said of the farmers of Italy, at the close of the civil wars,—subjects of an absolute prince, and a part of them only the owners of the land they tilled, it may well be repeated of the husbandman of New-England, the proprietors of a soil which furnishes a competence of all the good things of life; and the possession of an amount of blessings never surpassed, if ever equalled. Not among the least of these privileges, is the rich birthright of patriotic recollections which has come down to us from our fathers; and of which no portion of our country has more to boast, than the ancient county of Essex. It is no mere compliment, sir;—the county of Essex is a distinguished part of the state. It would be easy, within the limits of this single county, to find, in the history of other times, bright examples of all the traits of character and conduct, which promote the prosperity and honor of nations in peace and in war. From the early contests with the Indians and French,—from the time when the "Flower of Essex" fell at "Bloody Brook,"—down to the close of the revolution, the fathers and forefathers of those I have the honor to address, contributed a full share of the counsel and treasure, the valor and blood by which the cause of the country was directed, sustained, and carried through triumphant. * * * *

Nor let us not forget, if we have a patriotic ancestry to be proud of,—and if we have privileges to enjoy,—we have also incumbent duties to perform. The great principles of republican liberty are exposed to danger in peace as well as in war. Prosperity not less than trial may sap the foundation of the social fabric ; and there is at all times less danger from a foreign foe, than from party passion, individual selfishness, and general apathy.

---

[*] The cotton plant has a long tap-root, worthy of some remarks.

It will not, of course, be expected of me to enlarge upon the duties which devolve upon our husbandmen, with a view to guard against these dangers and perpetuate our institutions in their purity. I can but glance at the topic. But I may say, that the first and most important duty of the husbandman is to endeavor to preserve, and if it may be to strengthen, the broad foundation laid by our fathers, in a deep religious principle. Surely there is no class of the community, whose daily pursuits ought to furnish greater nourishment to the sense of religious things. The reflecting mind it is true, beholds traces of a higher wisdom and goodness in every step of every walk of life ; but the husbandman, who drops a seemingly lifeless seed into the cold damp earth,—there in a great part to decay, —who sees the vital germ in a few days pierce the clod,—rise into the air,—drink the sun's rays and the dews of heaven,—shoot upward and expand,—array itself in glories beyond the royal vesture of Solomon,—extract from the same common earth and air a thousand varieties of the green of the leaf,—the rainbow hues of the petals, the juicy or the solid substances of the fruit which is to form the food of man and his dependent animals—I say the intelligent husbandman who beholds this, seems to step behind the veil, which conceals the mysteries of creative power, and sit down, (if I dare so to speak) in the laboratory of Omnipotence.

Connected with the cultivation of the religious principle, and the natural fruit of it, we look to our husbandmen for a high moral sense. The worst feature in the degradation of many foreign countries, is the moral condition of those who till the soil, showing itself in the extreme of intemperance, and the kindred vices. No man can fully understand this, who has not witnessed it. In the general moral character of our population, we are warranted in saying, that it might serve as an example to the world. I do not think that out of New-England, (and I repeat only a remark, which, I have heard several time from persons coming from other parts of the country,) you could assemble a concourse giving so much proof of sobriety, thrift, and industry, as is brought together in this town to-day, and might be assembled, on a similar occasion, in any town in Massachusetts. We look to our husbandmen, by precept and example, to sustain, and if possible elevate this sound state of morals in the community.

Lastly, that I may say a single word on a subject, on which the orator has preceded me—it is a great and just boast of the pilgrims and their descendants, that they made early and ample provisions for education. Farmers of Essex, hold fast of that boast. I had rather for the appearance, if I must choose between them, see the country dotted all over, at its cross-roads, with its plain little village school-houses, than have the high places of a few large towns crowned with the most splendid fabrics of Grecian and Roman art. I had rather for the strength and defence of the country,—if I must choose between them,—see the roads that lead to those school-houses thronged with the children of both sexes, saluting the traveller as he passes, in the good old New-England way, with their little courtesy or nod, than gaze on regiments of mercenary troops parading upon the ramparts of impregnable fortresses. Aye, for the honor of the thing, I had rather have it said of me, that I was, by choice, the humble citizen of the state, making the best provision for the education of all its children, and that I had the heart to appreciate this blessing, than sit on a throne of ivory and gold, the monarch of an empire on which the sun never sets. Husbandmen, sow your seed of instruction in your sons' and daughters' minds. It will grow up and bear fruit, though the driving storm scatter the blossoms of spring, or untimely frost overtake the hopes of autumn. Plant the germ of truth in the infant understandings of your children ; save, stint, spare, scrape,—do any thing but steal,—in order to nourish that growth ;—and it is little,—nothing to say, that it will flourish when your grave-stones, crumbled into dust, shall mingle with the dust they covered ;—it will flourish, when that over-arched heaven shall pass away like a scroll, and the eternal sun, which lightens it shall set in blood !

MARL—(*Continued from page* 146.)

APPLICATION OF MARL.

Many farmers either lay marl upon land sown with tares, thus making a bastard fallow ; or they apply it to grass land, or to a clover ley, to be broken up in the following year. The latter is certainly the preferable, as well as the most general practice, for it not alone produces an abundance of good pasture, but it affords time for the season to operate in bringing the marl into a fit state for future tillage crops, which cannot be done in the common course of cropping, because it becomes buried by the plough before it is properly mixed with the soil, especially if turned in deep the first earth. It should, therefore, be allowed sufficient time to sink, and eat itself into the surface, before it is ploughed up. This, however, is by some persons carried to an absurd length, as they occasionally spread a coat of marl upon the green sward, and leave it there unploughed for many years, in which case the grass receives considerable detriment, for the marl then sinks downwards in a body, without incorporating with the soil ; though, when it has lain a long time in this state, the subsequent crops of corn have been found to be enormous. If laid upon grass, it may be carried out during all periods of the year in which the crop is not in a forward state of growth ; but if applied to arable land intended for immediate cultivation, the months of June and July, or soon after the autumn seedtime, are considered the best for its application. If laid on a short time previous to winter, its effect is also generally prompt, because, except it be of a very tenacious kind, the action of the cold and rain commonly divide it in time, to be thoroughly amalgamated with the soil by the tillage of a summer fallow. If, however, it be only applied during the spring months, this cannot be so properly carried into execution, for it requires the winter's rain and frost to crumble it, and it consequently has but little power upon the year's crop.— A complete summer fallow is, undoubtedly, the best mode of bringing it into perfect operation : but not only is the expense often objected to, but there is also a strong prejudice entertained by many persons against fallowing—into which it is not our present object to enquire, although we necessarily shall have occasion to notice it hereafter.

It is almost superfluous to add, that, in whatever manner it be applied, it must be equally spread over the land ; and if there should be any large lumps remaining, these should be broken with mallets, or clotting-beetles, in the same manner as chalk, before it is ploughed in. This, however, is not usually done until the marl has partaken of both one summer's sun and one winter's frost ; and should the previous season have proved unfavorable to the reduction of the marl to small particles, the process, in some cases, costs so much, that, when laid upon grass or clover, it is often found more advisable to leave the ground unbroken during another year. Then, when well crumbled, dry weather should be chosen for rolling and harrowing it—a first time with heavy rollers and drags, and a second, after it has been exposed to rain, and has been again dried : in short, until it has been rendered as small as possible ; after which it should be lightly ploughed in, again harrowed, and receive from two to four ploughings, according to the condition of the soil. The intermixture of the marl with the earth cannot, in fact, be too complete ; for whatever proportion remains uncombined with the soil, will not alone fail of producing the intended effect, but will have one of an opposite and prejudicial tendency.

The *quantity of marl* which it may be prudent to apply to the land depends entirely on the nature of the soil, and the properties of the marl ; the more calcareous is the latter, the greater is the effect which it will produce, as a stimulant ; and shell marl possesses, besides, the additional power of nourishing the soil by the vegetable and animal mould with which it is combined. This species was formerly profusely used on every sort of ground, but at present the average amount applied to land of the medium kind is from 30 to 40, or, if it be very light, only 25 cart-loads, or 16 cubic feet per acre. Land of the latter quality may, indeed, be readily over marled ; as by repeated marling, in large quantities, the surface of poor ground may be rendered so loose that, in some cases, it has not afforded a sufficient hold to the roots of corn and grass.* Double the quantity may, however, be laid upon strong cohesive soils, for it is not so easy to give them too large a dose ; but if cold, wet, or moorish, great circumspection is requisite in the application of this marl, for if the land be not previously well drained, it will only increase its tenacity.

The earthy marls, if much mixed with clay, are only fit for light soils ; and, if applied to them, the quantity must be increased in proportion to the deficiency of calcareous matter. When of good quality, containing about 20 to 25 per cent of calcareous or chalky substance, they are commonly laid upon such land to the thickness of an inch; which will require 135 cubic yards, or about 200 single horse cart-loads per acre.[*] Sandy marl, though generally more calcareous; yet being dug up with less labor, is often used upon clays with greater freedom; and we have already seen the great extent to which stony marl is sometimes applied.[†] In many parts, however, where the effects of marl have been extensively experienced, these quantities have been diminished one half, with nearly, if not entirely, the same immediate effect upon the crops, though its power has been less durable, and has in most cases altogether ceased at the end of at most a dozen years; but, then, it admits of the following advantages—a farmer may be able to afford half the expense, when the whole amount may be beyond his means; or, at the same time, he can marl double the extent of land, and he can reap all the probable benefit within the term of a moderate lease. Nor is this all; for, supposing him to have the freehold—it has been found, that when large quantities of marl have been laid upon the land, though its effects last longer, yet, unless cultivation be carried on with great intelligence and care, these are at length worn out, and by severe cropping to repay the expense, large tracts of marled land have been much exhausted. In such cases, too, a second application has been attended with very little benefit; whereas, when it has been laid on in moderate quantities, a second and further application have been successful; the reason of which evidently is, that, in the first instance, the fertility of the mould was either exhausted by the chemical effect of the marl, or that, the soil being of a heavy kind, and the marl containing too great a proportion of clay, this addition became injurious; while, in the second, dung had been applied in aid of the marl, or, its earthy properties being of a nature opposed to those of the soil, assisted in its amelioration. The latter of which suppositions is, indeed, supported by the fact, that when a second application of clay-marl has failed, lime has been laid upon the same land with sensibly good effects.

---

* Perth Report; and Appendix to that of Cheshire, No. 3.

It has also been observed, in those places where marl is applied to the land in small quantities at stated distances of time, and where a sufficiency of dung is likewise used, that when weeds of any peculiar species push forward with extraordinary vigor, marl, if accompanied by a clean fallow, not only destroys them, but produces better corn than when dung has been laid on alone, though also upon a fallow, and instead of marl; which has been thought to be accounted for by the exuberance of the weeds proving that the soil is already abundantly furnished with nutritive matter for the promotion of vegetation, but that it is more appropriate to the production of the weed with which the ground is covered, than to cereal crops; whence it has been inferred, that the chemical action of the marl probably changes the nature of the mould.

The *durability of the effects of marl* necessarily depends upon its power over the soil. A very arge dose of argillaceous, or clayey marl, ameliorates sandy soils to such a sensible degree by the consistence which it affords to the land, that, if proper attention be paid to its complete combination with the surface, and to the prevention, by careful culture, of its sinking to the sub-soil, as well as to the employment of putrescent manure, the improvement thus effected will be found permanent. When laid on in smaller quantities, its effect and duration will, on those light soils, of course, be proportionate; but on clays, as its chief power consists in the calcareous matter which it contains, its greatest effect is apparent when the land is brought into the second course of tillage, after which it gradually begins to decline, and after six or eight crops have been grown, it usually ceases to operate. No rule can therefore be laid down for its value among tenants upon a change in the occupation of the land, and it can only be estimated by the opinion generally prevalent throughout those parts of the country where it is used.

It is extensively employed throughout Cheshire, Lancashire, Shropshire, Staffordshire, and most of the midland counties, in almost every part of which it is found, but in the greatest abundance where the prevailing soil is a clay, or a clayey loam. It is there generally red, dark brown, or bluish-gray, intersected with veins of light yellow, of a greasy touch when moist, and friable when dry: the land where this species of marl forms the subsoil is likewise very commonly found to be of first rate quality. There is also an excellent kind of marl sometimes met with, which is vulgarly called *dove-dung*, from resembling that of pigeons. Under sandy or mixed soils it is also very frequently met with, but usually at a more considerable depth. It is sometimes laid on the green sward in winter; and after being acted upon by the frost, is ploughed in the following spring, usually for oats. If, however, allowed to lie for twelve or eighteen months, it will have a still better effect; for the successive changes of the atmosphere moulder it down, and the roots of the grass combine it with the surface of the ground, by which means it becomes more beneficial to the following crop than if stirred immediately by the tillage of a fallow. Marling on fallows is, however, practised to a very considerable extent, and is there found generally productive of great benefit to the soil. It is spread, immediately after being carted, upon the land, but its pulverization is left almost entirely to the atmosphere. Some kinds are much more easily reducible to a powdery state than others, and the difference determines, in many instances, the propriety of their respective application. On the stiff clay lands, or where immediate crops are the direct object of marling, those marls which pulverize with the greatest rapidity on exposure to the weather contain the largest portion of calcareous matter, and are, therefore, found the most beneficial. On light sandy soil, or where marl is employed with a view of producing durable effects, the more tenacious kinds may also be used with even greater advantage. Under the latter mode of application, the effects produced on the soil are not, indeed, evident until after repeated ploughings, and they frequently continue to manifest themselves during a long period.

There is, however, a bad sort of red clay-marl, as well as a kind of brown shining clay, sometimes mistaken by farmers for marl, which, having been dug out of almost every field, and laid during many ages on some heavy soils, has increased their tenacity, and rendered them less fit for the purposes of agriculture. Its effects are, indeed, so apparently unfavorable, that its further use has been prohibited to the tenantry on the estates of the Duke of Sutherland, in Staffordshire and Salop, and a distinct line in the appearance of the crops now points out with precision the land which was formerly so treated. Of this fact all the intelligent part of the tenantry are themselves convinced, though some are still so wedded to their old customs, that they lament the regulation which excludes its use.

Marl is, also, generally used in Norfolk, in which county it is found of better quality, and of easier access, than in most other parts of the kingdom. By Mr. Blaikie, it is described as having a hard, dry, and slaty appearance, when first dug from the pit, and possessing about the same proportion of lime as the Norfolk clay, which contains a large proportion of calcareous earth; the only difference between them seeming to consist in the one being a little more friable than the other; so that they are very commonly confounded,—'one practical man calling that substance clay, which another, equally conversant in such matters, terms marl.'[*] By other persons, another species is mentioned as a white, pure, calcareous substance, like chalk, though sometimes streaked with yellow, but fat and unctuous. When found of any other color, it is, indeed, said that farmers can scarcely be persuaded that it is marl; but although this kind possesses greater purity than the former, yet there are many other sorts of very strong quality. On its first discovery it was seldom laid upon the land at a less rate than from 80 to 100 loads, each containing as much as a wagon with three horses could draw, and its effects were found to last, on some soils, full twenty years. This system has, however, been latterly corrected, and the quantity now laid upon the land does not usually exceed 40 to 50 tons per acre. It imparts tenacity to the soil, and where that is composed of a mixture of sand and loam, or of sand and gravel, it causes great improvement; but on land of so loose a texture as to consist almost wholly of sand, it has been found, in the course of years, to form a retentive sub-soil, which has proved injurious. It has, indeed, been shown, in some instances, that on land of the latter description, clay has had a better effect.

---

[*] Clay-marl is not uncommonly laid upon light soils to the extent of two roods, each containing 64 cubic yards; but on heavy land, half that quantity per acre is considered a good covering.—Cheshire Report, p. 222.

[†] See p. 303. Throughout many parts of Scotland it is applied at the rate of 200 to 300 small cart-loads per Scotch acre,—equal to 160 to 240 per imperial acre. It is there commonly applied to grass land, and allowed to remain one or more winters; on the surface, until completely reduced by the frost.—Survey of Moreyshire, pp. 21-320; Forfarshire, p. 407.

[*] Treatise on Mildew, 2d edit. p. 26. 'The substance called clay, in many other districts, contains a larger proportion of alumen, or clay proper, with a very limited quantity of lime, and is, consequently, not adapted for husbandry purposes; at least, not upon tenacious soils.'

In the earliest stages of improvement in the Norfolk husbandry' some farmers, from experiencing the evils of a want of firmness in their poor sands, marled at the rate of 120 to 150 cubical yards per acre; the consequence of which was what they call *setting;* the firmness was produced, but at the expense of the friability of the soil, which was thus rendered too tenacious, so that it is at present found preferable to give a moderate dose at first, and to repeat it at a future period. This prejudicial effect, arising from marl, is very remarkable; for the clay, sand, and lime of which it is composed would not, if thrown promiscuously over a field, produce the same effects; and when laid upon the land they indicate no improper proportions, nor any which are not found in very rich soils. It may, therefore, contain other ingredients which have not yet been detected by chemists; and, as has been imagined—perhaps not unjustly—by Arthur Young, 'it arises from the addition not being so well assimilated with the sand, as in soils of a natural texture it is rather a mixture than an incorporation.'[*] There is, indeed, reason to suppose that marl derives much of its beneficial qualities, as a manure, rather from the complete amalgamation of the various substances of which it is composed, than from any other cause.

Mr. Marshall, in his Rural Economy of Norfolk, enters into a chemical investigation of the nature of the marls, which, though too long for insertion here, is well worthy of attention; in which he describes that of the white, or rather yellow kind, as one of the best and most lasting species of fossil manures. Twelve cart-loads—according to his account—change the nature of the land in the second year after it is laid on; and most of the exhausting weeds which impoverish the soil, and choke the corn in its infancy, being effectually destroyed, it consequently has a great tendency to keep the land clean; also bracing the pores of the earth, and increasing its fertility to a surprising degree. Its benefits, he says, are felt throughout full thirty years; when a second marling of about half the original quantity may with propriety be used; but it has been found, by experience, that it does better the second time, if applied as a compost with earth of a sort different from that of the soil on which it is laid; or with mud, and more especially with dung. To this it may also be observed, that lime is not unfrequently added; though, as lime and marl both partake of the same properties, the mixture of the former only has the effect of strengthening the compound.

It thus appears that not only do the species of marl vary in several parts of the kingdom, but in some parts there are kinds which, though seemingly quite distinct from each other, have yet been found, on trial, to possess precisely similar qualities; for we learn that experiments on a considerable scale have been tried in the New Forest, in Hampshire, on three different sorts, dug out of the same pit, namely,—yellow, at about four feet below the surface, blue in the middle, and shelly-marl underneath; and yet, although from all the accounts which have been received of the latter, its properties are superior to those of the two former, still, in these instances, no other differences was observable in the crops during many years, except that the shell-marl rendered the land rather the most friable.[†]

That marl materially benefits land on which it is judiciously used, admits of no kind of doubt. Much difference of opinion is, however entertained respecting the manner in which it operates,—most farmers conceiving that its only value consists in the calcareous matter with which it is combined; others, that its principal advantage arises from the bulk and consistency which it imparts to the ground; and some, that the improvement which it occasions is chiefly owing to its mechanical action on the texture of the soil. Upon an attentive consideration of the subject, it will, however, appear, that a certain portion of its utility as a manure is derived from each of the three sources which have been assigned. With regard to the calcareous earth of which it is partly composed, it clearly possesses, in extent equal to the proportion which it contains of that substance, the same power that would be produced by the direct application of a similar quantity of lime. It is however, apparent that some descriptions of marl, though advantageously employed on most soils, do not contain any, or only a very small portion of the carbonate of lime; its efficacy therefore cannot be solely attributable to that cause,[‡] and it must possess some other property from which its influence upon the land is partly derived. This may consist either in the change which its application produces in the texture of the ground through the mere increase of its bulk, which, by its dense and unctuous quality, also adds to the consistence and value of all light soils; or, by the more perfect combination of the particles of which it is formed, by which its powers are brought into full action, and lime, sand, and clay are each made to bear against each other, and thus aid its mechanical operation on the land. All marl, except those species which are combined with large portions of iron, sulphur, or deleterious mineral substances, also of itself affords nourishment to corn and vegetables; it must, therefore, be considered as a soil, and when laid upon the land, this addition must necessarily yield a more abundant support to succeeding crops.

If this view of the subject be correct, it may be assumed, that all kinds of marl which abound in calcareous matter may be considered applicable to every soil to which lime is beneficial; subject, however, to the effect which may be also produced by the other portions of their substance when applied to land of a peculiar nature.—Thus—as we have already more fully stated in the preceding part of our observations—on light, sandy, and gravelly soils, an advantage is gained by the large quantity of clay which the marl appropriate to such land usually contains, by rendering them more stiff and impervious to the rain, and therefore stronger: on wet and heavy lands, on the contrary, as it renders the soil more retentive, unless very great care be bestowed on their drainage, it may occasion permanent injury; but shell and stone-marl occasion it to become loose and friable. Attention should therefore be paid, not only to the nature of the marl, but to that also of the soil to which it is to be applied; and when a choice of marl can be procured, its earthy portion should differ as widely as possible from that of the ground upon which it is intended to be laid.

In fine, marl may be considered as an improver of the soil under so many different circumstances, that it can hardly be recommended in too strong terms; for if it be used with judgment, it adds staple to the soil, improves its quality, and renders the application of putrescent manure more effectual. The use which some farmers make of it, however, deserves the highest censure,—'many of them taking repeated crops of oats in the interval of one summer-fallow for wheat, by way of cleansing the land; after which, barley and oats again, as long as the land will produce anything, until it is at last laid down with weeds and couch-grass. Such is the view taken of their conduct by the surveyor of Lancashire, where it is very extensively employed, and in which opinion he is by no means singular. The rotation which he recommends—with reference, of course, to land that is not too strong—is to take one crop of oats the spring subsequent to marling; plough the stubble immediately, in order to expose the marl again to the influence of the frost; fallow, with manure, for turnips—a crop which, under this management, is never known to fail; then barley, clover, wheat, turneps fed off with sheep, and barley again, with well-dressed hay seeds, and white clover and trefoil for a perennial ley, or at least for some years. Under which management, poor land may, when properly tilled and duly supplied with putrescent manure, be rendered highly exuberant without being in the least degree harrassed.—*Farmer's Series.*

From the United States Gazette.

BEET SUGAR.

To J. R. Chandler, Esq.—Sir—Perceiving by the many applications made to me for information respecting Beet Sugar, that not only a very general interest prevails on the subject, but also some very erroneous views, I take leave, through your wide circulating paper, to publish a few of my views thereon, being the conclusions I have come to, after numerous experiments, as well as from information I have obtained from the most scientific French authorities.

1. An establishment will not clear its expense unless it be calculated to manufacture at least from two to five hundred pounds of sugar per day, so that the idea of individuals in this country manufacturing profitably for private consumption is preposterous; their sugar would stand them, including labor, a dollar per pound.

2. The greatest advantage will be derived from steam power,

---

[*] Papers of the Bath Agricultural Society, vol. x. p. 103.

[†] Communications to the Board of Agriculture. vol. vi. art. 3.

[‡] Out of twelve specimens of marl submitted to the inspection of Sir Humphrey Davy, eleven were found to contain calcareous earth in various proportions; but the result of many other trials of marls, procured from different parts of the country, and found by farmers to produce an ameliorating effect upon the land, yet proves them to be in many instances, wholly deficient in that substance. See the section on 'Marl,' in Holland's Survey of Cheshire.

which will accomplish three objects at least, viz:—First, the rasping of the beets; secondly, the reducing of the liquor "in vacuo;" and thirdly, the boiling of the syrup without the risk of burning it, of which the beet syrup is in much greater danger than the cane syrup; the proof of the former being some degrees higher than that of the latter.

3. The juice of the beet decomposes in the summer in this country in less than two hours. I have known the viscid fermentation commence in twenty minutes. When this once occurs, sugar can never be obtained from it; in a large establishment in this country, it must be prevented by chemical agents.

4. Not only must the acid be neutralized, but the mucilage must be chemically coagulated, the cerate decomposed, and the malate of lime extracted, or the crystalizing will be rendered extremely difficult, if not totally impracticable in many cases, and good sugar will never be made.

5. I am persuaded the refining process can be profitably united to the manufacture of the raw sugar.

6. The profits are incredibly increased in proportion to the extensiveness of the establishment, but no one ought to engage in this business who has not *mind*, as well as capital.

7. One half of the manufacturing expenses will be saved, by a scientific arrangement of the apparatus, so as to dispense with, as much as possible, manual labor.

8. Understanding from various farmers within from ten to twenty miles of this city, that they are perfectly content with about twenty or twenty-five dollars per acre's produce, and as each acre ought to yield on an average 40,000 lbs. of beets, which will produce 2,400 lbs. of sugar, I have made the following estimate. Supposing the apparatus to be capable of working only about 100 lbs. of sugar per day, it would take 24 days to manufacture 2,400 lbs. of sugar.

EXPENSES.

One acre of beets, (40,000 lbs.)	$25 00
Two men for 24 days,	48 00
Two boys for do.	22 00
Fire and rent, &c	40 00
Total,	$135 00

RECEIPTS.

Quantity of sugar from the acre of beets, would be 2,400 lbs. which, at 10 cents per lb. would be	$240 00
Beet cake and molasses, &c	20 00
Total,	$260 00
Expenses,	135 00
Profits,	$125 00

By this general statement it will be perceived that there will be nearly cent per cent profit, but then the interest of the capital sunk in the purchase of machinery is not included. On the other hand, the two men could work twice or four times as much, and the apparatus for the increased quantity cost very little more.

If you think these remarks worth publishing, you are welcome to them, and I am, sir, your very obedient servant,

W. W. SLEIGH.

Hamilton village, corner of Cedar-lane, Sept. 30, 1836.

ON POTATOES.

The potato will grow upon almost any kind of soil, provided it be not too wet and clayey; but light, dry, and friable loams, or sands of tolerable consistence, are the most appropriate. Reclaimed bogs and peat land, when well drained, produce large crops; and some of the finest qualities are grown on alluvial soils, and in the warped land in the neighborhood of the Humber. Grubbed wood-land is also favorable to its growth, and the planting of potatoes will probably be found the most profitable mode of bringing it into immediate cultivation; indeed, as much as 560 bushels per acre have been thus obtained, but the land was manured with twenty wagon-loads of dung. A sward, or first ley, is, however, the most desirable; and it is for this purpose the common mode of breaking up grass-land in Ireland, where it is frequently let to the peasantry at extravagant rents, in what are there termed "Con-acres," and yields crops of superior quality. The climate, indeed, is there more genial to the growth of esculents than that of England, and the soil is generally so much richer, that in no other country has the culture of the potato been carried to such perfection.

The produce of four eyes cut from the cluster species, and planted in four different kinds of soil, was—

On a strong rich loam,	34 lbs.
—— light rich loam,	29 "
—— a good gravel,	19 "
—— sandy soil,	15 "

But, although some idea may be thus formed of the probable produce, yet no definitive conclusion can be drawn from this experiment regarding the crops to be obtained from the land, for other sorts might have been better adapted to the soils; they must be all heavily manured, and good sands are especially favorable to the growth of the larger roots.

CULTURE.

In Yorkshire, and other parts of the north, the ground is ploughed into one-bout ridges, and the "sets," or cuttings from the potatoes to be planted, are placed in heaps or baskets, and laid by women and children in the furrows; the manure is laid at the same time, and the ridge is covered with earth by the plough dividing it, and making a fresh one over the potatoes. As soon as the plants make their appearance above ground the ridges are harrowed down, and are suffered to remain in that state about a week, when the weeds will again begin to appear; the ridges are then earthed up, and in a week or two as much of the earth from the sides of them is ploughed down as can be done without leaving the roots too bare. After this the tops of the ridges are carefully hand-hoed, and the earth which was ploughed *from* the ridges is again turned *to them:* if afterwards weeds grow up, they are again hand-hoed, after which the earth is drawn up to the top of the ridges. The plants having by this time got to a considerable size, soon overcome all weeds, and consequently require no further attention till the time of taking up. It has, however, been justly observed, that "On all very dry sands, and in a dry climate, the land should be laid quite flat, and the plants should be hoed by hand, as the only means of preserving the ground sufficiently moist to promote the growth of the crop; but in every situation where there is no danger of the land being too dry, and on all thin soils, one-bout ridges have the advantage over every other method."

Another mode—which it seems has been borrowed from America—is to *plant the sets in banks.* "The field is marked out in shallow drills, at about two feet and a half distance, by the double mould-board plough, and is then marked out transversely at the same distance; thus intersecting the surface at right angles, and the dung is laid at the time of planting. The holes for the reception of the sets are formed by a laborer at the intersections marked by the plough, in such a manner as to leave them flat at the bottom, about ten or twelve inches diameter, and three or four inches deep. This being done, the manure is divided into the holes as evenly as possible, taking care that the particles be well separated by women and children breaking it with their hands. Four cuts are then to be laid in each hole, within four inches of the edge, and about six or seven inches distance, and covered by levelling the soil into the holes with shovels, which finishes the work until the plants appear above ground; after which only a small quantity of earth is thrown lightly on the banks, just sufficient to refresh the surface, and if the land be foul with weeds, it should be hand-hoed before the banks are dressed. The last earthing should not be performed until the crop is in full blossom, when it must get another light dressing."

Mr. Burroughs, from whom we have extracted the above account, says, that "many who have heard of this culture, but who have not practised it, imagine that its chief object is to afford a great quantity of earth being thrown up to the plants; but so far from this being the scientific principle of the system, that should the sets be deposited too deep, or the banks be landed too high, the crop would prove very unproductive." He adds also, from his own experience, that "the banks being left quite flat at the top when finished, the crop proved much more productive than the adjoining drills sown with an equal quantity of manure, and the potatoes were of better quality."

Regarding the *mode of spreading the dung*—whether above or under the sets—some difference of opinion prevails; for although the latter is the method usually adopted, and it may be rationally supposed that, as the roots shoot rather laterally than upwards, it is from the manure placed underneath that they extract their nutriment, yet it is supposed by many persons that, if the land be light and dry, it answers better to lay the manure in furrows above the plants; and some farmers seem to think the manner of its applica-

tion immaterial. According to an experiment made with the utmost degree of attention, under the direction of the Board of Agriculture, the former, however, appeared to have the advantage of five to four in its favor: the produce of an equal weight of sets, and quantity of manure, being—when laid over the dung, 105 lbs. 4 oz.
Under the dung, 84 " 3 "

Such are the ordinary modes of culture usually adopted throughout most parts of the United Kingdom; but a novel plan, which deviates in some essential particulars from those generally employed, has lately been brought into notice by Mr. Knight, the very intelligent President of the Horticultural Society; and, as the very interesting account which has been published by the society may yet be unknown to many of our readers, we here transcribe it, and beg earnestly to call it to the serious attention of every farmer who is engaged in that branch of husbandry.

"The experiments were made upon different varieties of potatoes; but as the results were in all cases nearly the same, I think that I shall most readily cause the practice I recommend to be understood, by describing minutely the treatment of a single variety only, which I received from the Horticultural Society, under the name of 'Lankman's Potato:'" a tall sort raised some years since in Flanders.

"The soil in which I proposed to plant being very shallow, and lying upon a rock, I collected it with a plough into high ridges of four feet wide, to give it an artificial depth. A deep furrow was then made along the centre and highest part of each ridge; and in the bottom of this, whole potatoes, the lightest of which did not weigh less than four ounces, were deposited, at only six inches distance from the centre of one to the centre of another. Manure, in the ordinary quantity, was then introduced, and mould was added, sufficient to cover the potatoes rather more deeply than is generally done.

"The stems of potatoes, as of other plants, rise perpendicularly under the influence of their unerring guide, gravitation, so long as they continue to be concealed beneath the soil; but as soon as they rise above it, they are, to a considerable extent, under the control of another agent, light. Each inclines in whatever direction it receives the greatest quantity of that fluid, and consequently each avoids, and appears to shun, the shade of every contiguous plant. The old tubers being large, and, under the mode of culture recommended, rather deeply buried in the ground, the young plants in the early part of the summer never suffer from want of moisture; and, being abundantly nourished, they soon extend themselves in every direction till they meet those of contiguous rows, which they do not overshadow on account of the width of the intervals.

"The stems being abundantly fed, owing to the size of the old tubers, rise from the ground with great strength and luxuriance, support well their foliage, and a larger breadth of this is thus, I think, exposed to the light during the whole season, than under any other mode of culture which I have seen; and, as the plants acquire a very large size early in the summer, the tubers, of even very late varieties, arrive at a state of perfect maturity early in the autumn.

"Having found my crops of potatoes to be in the last three years, during which alone I have accurately adopted the mode of culture above described, much greater than they had ever previously been, as well as of excellent quality, I was led to ascertain the amount in weight which an acre of ground, such as I have described—the soil of which was naturally poor and shallow—would produce. A colony of rabbits had, however, in the last year done a good deal of damage, and pheasants had eaten many of the tubers which the rabbits had exposed to view; but the remaining produce per acre exceeded 539 bushels, of 82 lbs. each; two lbs. being allowed in every bushel on account of a very small quantity of earth which adhered to them."

"The preceding experiments were made with a large and productive variety of potato only; but I am much inclined to think that I have raised, and shall raise in the present year, nearly as large a produce per acre of a very well-known small early variety—the 'ash-leaved kidney potato.' Of this I selected in the present spring the largest tubers which I could cause to be produced in the last year; and I have planted them nearly in contact with each other in the rows, and with intervals, on account of the shortness of their stems, of only two feet between the rows. The plants at present display an unusual degree of strength and vigor of growth, arising from the very large size—for that variety—of the planted tubers; and as large a breadth of foliage is exposed to the light by the small, as could be exposed by a large variety; for I have always found the amount of the produce, under any given external circumstance, to be regulated by the extent of foliage which was exposed to light; and I have uniformly found that to obtain crops of potatoes of great weight and excellence, the period of planting should never be later than the beginning of March."

The produce of this small early variety, in fact, very considerably exceeded that of the large one first mentioned—being per acre 665 bushels of 82 pounds—and both so far exceeded the ordinary crops which had been previously raised, except in very rare cases, that doubts were entertained of the exactness of Mr. Knight's conclusions, and experiments, it will be seen, were made in the garden of the society in order to obtain further evidence.

SEED.

It has been ascertained by repeated trials that every variety of the potato, when propagated during a series either by cuttings from the root or by the whole tubers, is subject to degenerate: in some, the quality remaining good, after the produce in quantity has become defective, whilst with others, it disappears with the vigor of the plant. In order to obviate this inconvenience, and to preserve those species which are known to be valuable, farmers occasionally raise them from the seed contained in the apples which grow upon the stalk; for which purpose, a few large ripe apples should be chosen from a healthy plant, and be carefully preserved apart, in some dry sand, during the winter.

The seed is then picked out, and usually sown in rich garden ground in the month of April; but it is more expedient to sow it in a hot-bed early in March, to expose the shoots gradually to the open air, and to plant them out in a bed of rich earth in the middle of May. In the month of October, these seedlings will produce tubers, the largest of which are to be gathered, and planted out, in the following spring, at a few inches distance from each other. When they rise about two inches above ground, they should be covered with two or three inches of mould, and managed in the same manner as if grown from the old potato.

When arriving at maturity, they should be continually and carefully examined, to discover those which appear the earliest in coming to perfection; which will be denoted by the decay of the haulm. These should be taken up, and in like manner those of a later growth; but those which show extraordinary vigor should be selected, and the produce of each sort being again sown in the ensuing year, a correct judgment may be formed of the respective properties of each. The process is thus so slow and troublesome, that it takes three years to bring any new variety to maturity, and a fourth before the real properties of the root can be correctly ascertained. The product will also sometimes disappoint the expectations of the grower; for although, generally speaking, the major portion of the crop will be found of the same quantity as the original stock, yet it occasionally fails, and new varieties are constantly produced, differing in both colour, flavor, size, and the periods of ripening. Thus, it appears from an experiment lately made in the garden of the London Horticultural Society, upon twenty-five seedling varieties reared by Mr. Knight, that the estimated produce varied from one to upwards of eighteen tons per acre; all of different qualities. The best produced from a single tuber twenty-seven large and seven small roots, the aggregate weight of which upon an acre of ground it was supposed would equal 17 ton 9½ cwt., and being both large, solid, mealy, white, well-flavored, and in substance and appearance much resembling the white yam, has been named by the society, after Mr. Knight's country-seat, the "Downton yam potato."

SETS AND TUBERS.

We have already stated that in the common course of field-husbandry, potatoes are invariably planted for a crop either by depositing the entire root, or cuttings from it, called "sets." No objection appears indeed to have been commonly entertained against the planting of the whole root, or "tuber"—except on the score of economy, though probably no other advantage will be thereby gained, for every tuber contains many beads, or "eyes"—from each of which a shoot will spring, and by sowing these separately, or in cuttings containing two or more together, a saving is made in the quantity; but an extraordinary opinion is entertained regarding the best method of performing this operation.

Among numberless experiments which have been made with a view to compare the produce of plantations of different sizes of whole tubers, and sets from different sizes of cuttings, those of entire potatoes reported to the Bath Society were generally stated to be superior. Dr. Anderson found that the crop was in some measure proportionate to the weights of the sets; and that it was more profitable to plant small potatoes than small cuttings. Others, however, found that the difference in acreable produce, between large and small, cut or uncut potatoes for sets, was quite immaterial; but that the saving in the quantity sown, was so much in favor of the cuttings as to require only twenty bushels, while whole potatoes consumed thirty-seven bushels per acre. Yet, according to a report made to the Dublin Society of Agriculture, it was stated, on comparison with sets cut from reasonably large and small tubers, that the produce in favor of the former was as 84 to 64; and another well informed gentleman states, "he has uniformly found in all his experience that large sets of potatoes made a more productive return than small ones. And upon trial, both in garden and field, he has repeatedly found that planting whole potatoes, even though large, very much increases the crop. In this way, however, they require to be planted thinner, as the stems, being stronger and more luxuriant, occupy more space."

To set this point at rest, five plots of ground of equal size, and as nearly as possible of equal quality, were also lately selected by the London Horticultural Society for the growth of five different varieties: one-half of which being planted with whole tubers, and the other with sets containing but one eye each; and, being placed at equal distances—eighteen inches apart—the result was as follows:

	Weight when taken up.					
Species.	Whole tubers.			Single eyes.		
	tons.	cwt.	lb.	tons.	cwt.	lb.
Early manly,........	17	10	4	18	19	82
Shaw's, ...	20	15	26	20	0	4
Red-nosed kidney, ...	18	7	71	17	12	49
Pink-eyed Scotch, ...	22	15	83	20	2	7
Champion,..........	23	14	0	24	9	18

The whole tubers appeared above ground, in each instance, three or four days earlier than the sets, and the haulm became somewhat longer; but the experiment shows that, although the total amount thus estimated to have been obtained is,

	tons.	cwt.	lb.
From whole tubers,..............	113	2	17
—— single eyes,................	111	3	54

thus giving an apparent difference in five acres of about two tons, yet it was hardly more than the difference between the weight of the tubers and the sets originally planted.

These and other trials, indeed, afford presumptive evidence that sets cut from full grown, healthy tubers, are as productive as the whole root; for although it is recorded as the opinion of the President of the Society, founded upon a great variety of experiments carried on during a long series of years, "that the heaviest crops of potatoes, and those most profitable to the grower, will in most soils and seasons be obtained from tubers of considerable weight, and will be found least subject to decay in wet and cold springs; he, however, thinks it extremely probable that, when the soil is very dry, so as to preclude all grounds of fear of the cuttings decaying, more regular and better rows of plants might be obtained from single eyes placed at short distances, with a moderately large portion of the matter of the tuber, than the whole tubers."

It may also be observed that the eyes or beads,—which appear like spots upon the skin of the potato—are of different kinds; those at one end being more prolific than the other; yet, when planted in sets, some farmers cut off both ends, only making use of the part in the middle, while others cut it longitudinally—from "nose to tail"—and set both halves indiscriminately; and many scoop out the eyes and plant them singly. The stems which spring from that end of the potato into which the fibre which connected it with the mother plant, and from which the potato itself is grown, germinate but feebly, and do not attain the same size as those which are found upon the other end, which may be seen by looking at potatoes in the spring, when they begin to bud: those which spring from the top end, having far greater vigor and luxuriance than those which spring from the root end.*

It is indeed a point which deserves very serious attention; and as the other portions of the potato can always be used for other purposes, it should never be neglected. Instead, however, of sowing single eyes, we should rather recommend the use of the entire cluster of buds which will be found on the top-end, or nose, of the tuber.—*Library of Useful Knowledge, Farmers' Series.*

MAKING AND PRESERVING CHEESE.

1. The goodness of cheese, as well as of butter, depends much on the quality of the milk. The season, and particular way of making it, also have a very considerable influence upon it in this respect—more perhaps than the material of which it is prepared. We shall, therefore, briefly notice these circumstances.

2. The best *season* for this purpose is from the commencement of June till the close of September. There is no doubt, however, but that good cheese may be made throughout the year, provided the cows be well fed in the winter. It is also worthy of attention, that milk abounds most in caseous matter during the spring, and with the butyraceous in summer and autumn.

3. The Cheshire cheese, made in England, is celebrated for its excellence, and we shall give the mode of making it adopted by the Cheshire dairy-men.

4. The thermometer of a Cheshire dairy-woman is constantly at her fingers' ends. The heat of the milk when set, is regulated by the warmth of the room and the heat of the external air; so that the milk may be the proper length of time in sufficiently coagulating. The time is generally thought to be about an hour and a half.

5. The evening's milk—of suppose twenty cows—having stood all night in the cooler and brass pans, the cheese-maker, (in summer,) about six o'clock in the morning, carefully skims off the cream, which is put into a brass pan. While the dairy-woman is thus employed, the servants are milking the cows, having previously lighted a fire under the furnace, which is half full of water.

6. As soon as the night's milk is skimmed, it is all carried into the cheese tub, except about three-fourths of a brass pan full, (three to four gallons,) which is immediately placed in the furnace of hot water, in the pan, and is made scalding hot; then half of the milk thus heated is poured to the cream, which, as before observed, had been already skimmed into another pan.

7. By this means all the cream is liquified and dissolved, so as apparently to form one homogeneous or uniform liquid, and in that state it is poured into the cheese-tub. But before this is done, several bowls or vessels full of new milk, or perhaps the whole morning's milk, will generally have been poured into the cheese-tub.

8. In some celebrated dairies, however, they do not, during the whole summer, heat a drop of the night's milk; only dissolve the cream in a brass pan, floated or suspended in a furnace of hot water. In other dairies, they heat one-third, one-half, or even more than that of the previous night's milk. But in all, they are careful to liquify or melt the cream well before it is mixed with the milk in the tub.

9. Whatever may be the general custom in any given dairy respecting the heating of the milk, the practice varies according to the weather. It is generally on poor clay lands that the milk most requires warming. On good rich soils, it will not bear much heating; at least, by so doing, the process of cheese-making is rendered more difficult.

10. The process of making cheese is much more difficult than that of making butter. The quality depends more on the mode of performing that operation than on the richness of the milk. The temperature at which the milk is kept before it is formed into cheese, and that at which it is coagulated, or turned into curds, are objects of the greatest importance in the management of a cheese dairy. The temperature of the milk ought not to exceed 55, nor to be under 50 degrees of Fahrenheit's thermometer. For coagulating, it should be at 90 to 95.

11. If the milk is kept warmer than 55, it will not throw up the cream so well as at the lower degree. It is also subject to get sour and give a bad taste to the cheese. If it be allowed to be much colder than that, it becomes difficult to separate the curd from the whey, and the cheese made from it will be soft and insipid.

---

* The upper or nose end, although the most watery part of the potato, should be preferred, as the roots produced from it have been found to become sooner ripe, and to be of better quality than those grown from the bottom.—*Farm. Mag. vol. xviii. p. 27.*

"In every field of potatoes which I have ever seen, where the cuttings for seed were taken from both ends indiscriminately, some of the stems grow with much more vigor than others; which proceeds, I believe, in nine cases out of ten, from planting weak sets cut from the root end of the potato."—*Ayton's Surv. of Ayrsh. p.* 280. Mr. Knight says that "the buds which vegetate from the lower sides of the tubers produce feeble stems."—*Trans. of Hort. Cult. Society.*

12. If the curd be coagulated too hot, it becomes tough; much of the butyraceous matter will go off with the whey; and the cheese will be hard and tasteless. The thermometer, should, therefore, always be employed in every dairy. Although the dairy-women may at first be prejudiced against it, yet its evident utility, and great simplicity, will eventually reconcile them to its use.

13. The greatest care should be taken thoroughly to extract every particle of whey from the curd. No cheese will keep well while any whey remains, and if any part becomes sour, the whole will acquire a disagreeable flavor. Similar effects are produced by the use of an immoderate quantity of rennet; it is also apt to blow up the cheese full of small holes. This last effect will be produced if it be allowed to remain too long on one side.

14. A very experienced dairy-man is of opinion, that from nine to twelve months' time is requisite to ripen cheese of from fourteen to twenty pounds weight. It is laid down as a rule, in the process of making cheese, that the hotter it is put together, the sounder it will be; and the cooler, the richer, and more apt to decay. It should be kept in an airy but not in a cold place. If the moderately dried leaves of the young twigs of the common birch tree be placed on the surface or sides of cheeses, they will be found very serviceable in preventing the depredations of mites.

15. It is a good practice to strew a little dry moss, or fine hay, upon the shelves on which the cheese are laid; for when new, they sometimes adhere to the board, and communicate a dampness to it that is prejudicial to the other side of the cheese, when turned. It also promotes their drying.

16. At a more advanced stage they may be laid upon straw; but at first, it would sink into, and deface the surface. To which we will add, as general maxims—that great cleanliness, sweet rennet, and attention to the heat of the milk and breaking the curd, are the chief requisites in cheese-making.—*Farmers' School Book.*

WHAT I HAVE LEARNED.

MR. HOLMES—I have been a Farmer in Maine fifty years and upwards. I farmed it as my neighbors did, and supposed I knew enough about farming, having never read any authors or exchanged any ideas on the subject of agriculture, I never once thought of any improvement in the art, except that when I saw any of my neighbor's cattle very poor, and so starved that they would eat much from my dung heap in winter, I was, to be sure, satisfied that he did not work it exactly right. Even then I supposed he had better keep a smaller number of creatures, and not be guilty of the great sin of starving his stock, and thereby actually loosing money, paying taxes, and being at the expense of keeping two cows when one well kept would have given more than both of them.

But within the last three or four years, particularly since your Maine Farmer was published, I have read and attended to agriculture more closely, by reading and attending agricultural meetings, cattle shows, and hearing others relate their views and experience on the subject. Not a little information have I gained by what your valuable correspondents have brought to view in the Farmer, as well as your extracts from other and distant writers, from all which and my own reflection, I have learned, (and I find others are not behind me,) not to depend so much on English hay for our stock in winter, as it may be so cut short by drought and other causes, as to render our stock worth nothing in autumn. Hence we have learned to raise ruta baga and other roots, to aid in carrying our stock through the winter. Fresh meadows are more set by and improved. Even browse has been found useful. I have learned that store swine may be kept as well on turneps as potatoes, and that many more of the former may be raised on a given quantity of land, at no considerable more expense, if any. I have learned that tight and warm barns and stables not only save hay best, but in such our stock are more comfortable and require much less food. I have learned how to make a barn, &c. I have learned that one hundred bushels of corn may be raised in a single year, on an acre of ground in Maine, which I should have been slow to believe many years ago. I have learned that wheat may be raised on a clover sod, with a light top dressing of plaster or ashes. I have learned that our stock, particularly black cattle, have been much improved in size and value recently, to which I have no doubt our cattle shows have been a great auxiliary. I have learned that the labor on a farm may be carried on to more advantage without alcohol than with it. Time would fail me to name half the advantages which has accrued to the agricultural interests, from the publication of the Maine Farmer and similar papers in the nation. But I will name one more, and that is, that apples are excellent for fattening swine and other creatures, and for winter keep. And yet I am told that the proprietors of the Farmer talk of letting its publication cease, for the want of subscribers! they say they are losing money by continuing it! For one, I am determined to procure one more subscriber to it, if it cost me some trouble. I do hope every subscriber will not rest until he does the same. Can it be that our farmers, mechanics, and growers of stock are so blind to their own interest as to starve those valuable citizens who instituted the paper in question? This I will not as yet believe.—*Maine Farmer.* JAY.

Young Men's Department.

HINTS TO YOUNG FARMERS.—No. III.

Self-instruction is a principle means of arriving at eminence in any employment. The education we receive in youth serves but as the foundation, at best, of the superstructure which is to be reared in manhood, and every individual is, in a measure, his own architect, and may select his model. To the farmer this truth applies with as much force as to any other employment. The business of husbandry is so diversified, that the wisest men engaged in its pursuits, continue to add to their knowledge as long as they retain the powers of intellect. The experience of every country, and of every day, is adding practically something new and useful to this branch of labor, while science is beaming upon it the light and life of her effulgent rays. Him that will may profit by the concentrated wisdom of the age, and advance progressively in improvement, in usefulness, and in intellectual enjoyment. The farmer is urged to the effort by a triple consideration:—the improvement which it promises to his mind and his means;—the benefit which the example confers on his children;—and the increased ability it may afford of doing good to those around him—the last a consideration of no little weight with those who appreciate their obligations to society, and who have felt the pleasures that flow from their requital. The directions for self-instruction are comprised in two words: BECOME READERS. Most farmers can appropriate three or four hours in every twenty-four of the winter months, to this means of acquiring knowledge; and while they are cultivating their own, they cannot fail to scatter seeds of usefulness in the prolific minds of their children. In the period of ordinary life, these *hours* will make an aggregate of *years.*

Let me put a case. Who of you, that has a spark of laudable ambition, would not feel it a privilege to spend an evening with Washington, Arthur Young, or Sir John Sinclair, all men eminent as farmers, and hear them relate their practice, their observations, and their improvements in husbandry? Who could fail to profit from their instructions? And again. What farmer would not count himself fortunate in the opportunity of hearing Sir Humphrey Davy, or some other eminent chemist, explain, in language adapted to his comprehension, the nature and properties of the soil he tills, of the plants he rears, and of the manures he employs—of the agency in vegetation of air, heat, light and moisture, and the method of applying these facts to his immediate benefit? Now it happens that all this is virtually within his reach. Those great men have written all I have supposed, and have left their instructions for your benefit. Do you converse, in your social meetings with your neighbors, upon husbandry, without receiving some useful hint in your business, or imparting such to others? And if you experience pleasure and profit from this limited intercourse, how much greater must be the advantage when you extend it, as you may, through books, to the most eminent farmers of your own and every other country? Besides, there are other branches of knowledge connected with your duties in life, and with your happiness, which it becomes you to acquire, and to teach to those confided to your care. And the means are within your reach. Franklin rose from obscurity to distinguished eminence, and from indigence to wealth, principally by the aid of self-instruction. He commenced his course of usefulness by buying single volumes, gleaning the knowledge they afforded, and then selling them to buy others. Public libraries were not then known among us. The facilities which these afford are manifestly great. They are a cheap and an excellent means of acquiring and diffusing useful knowledge. The annual contributions of a few neighbors, will soon buy a respectable collection of books, and the individual then receives the advantage not only of his own expenditure, but of that of the whole association. You should, at all events, subscribe for one or more agricultural periodicals, if you mean to keep pace with the improvements of the day.

The human mind is prolific in good or evil. It is seldom sterile. Like our soils, it *will* produce either useful or noxious plants; and if we do not cultivate and nurture the good, the bad will spring up and grow spontaneously. Our duties to our families—our obligations to society—our pride as good farmers, combine, with irresistible force, to urge us to the decision, that neither our minds nor our lands shall RUN TO WEEDS; but that both shall be sedulously cultivated in the way that shall best conduce to usefulness and happiness in time and eternity.

WHAT IS EDUCATION?—BY W. E. CHANNING, D. D.

The great end of education is not to train a man to get a living. This is plain, because life was given for a higher end than simply to toil for its own prolongation. A comfortable subsistence is indeed very important to the purposes of life, be this what it may. A man half-fed, half-clothed, and fearing to perish from famine or cold, will be too crushed in spirit to do the proper work of a man. He must be set free from the iron grasp of want, from the constant pressure of painful sensations, from grinding, ill-requited toil. Unless a man be trained to get a comfortable support, his prospects of improvement and happiness are poor. But if his education aims at nothing more, his life will turn to little account.

To educate a man is to unfold his faculties, to give him the free and full use of his powers, and especially of his best powers. It is first to train the intellect, to give him a love of truth, and to instruct him in the processes by which it may be acquired. It is to train him to soundness of judgment, to teach him to weigh evidence, and to guard him against the common sources of error. It is to give him a thirst for knowledge, which will keep his faculties in action through life. It is to aid him in the study of the outward world, to initiate him into the physical sciences, so that he will understand the principles of his trade or business, and will be able to comprehend the phenomena which are continually passing before his eyes. It is to make him acquainted with his own nature, to give him that most important means of improvement, self-comprehension.

In the next place to educate a man, is to train the conscience, to give him a quick, keen discernment of the right, to teach him duty in its great principles and minute applications, to establish in him immovable principles of action. It is to show him his true position in the world, his true relation to God and his fellow-beings, and immutable obligations laid on him by these. It is to inspire him with the idea of perfection, to give him a high moral aim, and to show how this may be maintained in the commonest toils, and how every thing may be made to contribute to its accomplishment.

Further, to educate a man in this country, is to train him to be a good citizen, to establish him in the principles of political science, to make him acquainted with our history, government and laws, to teach him our great interests as a nation, and the policy by which they are to be advanced, and to impress him deeply with his responsibility, his great trust, his obligations to disinterested patriotism as the citizen of a free state.

Again, to educate a man is to cultivate his imagination and taste, to awaken his sensibility to the beautiful in nature and art, to give him the capacity of enjoying the writings of men of genius, to prepare him for the innocent and refined pleasures of literature.

I will only add, that to educate a man is to cultivate his powers of expression, so that he can bring out his thoughts with clearness and strength, and exert a moral influence over his fellow-creatures. This is essential to the true enjoyment and improvement of social life.

According to these views the laboring classes may be said to have as yet few means of education, excepting those which Providence furnishes in the relations, changes, occupations and discipline of life. The great school of life, of Providence, is indeed open to all. But what, I would ask, is done by our public institutions for the education of the mass of the people? In the mechanical nature of our common schools, is it ever proposed to unfold the various faculties of a human being, and to prepare him for self-improvement through life? Indeed, according to the views of education now given, how defective are our institutions for rich as well as poor, and what a revolution is required in our whole system of training the young?

The great aim of philanthropy should be, that every member of the community may receive such an education as has been described. To bring forward every human being, to develope every mind, is the great purpose of society. I say of society, not of government, for government is a mere instrument for holding society together, a condition of its existence, and not the great power by which its ends are to be accomplished. One of the pernicious doctrines of the day, very pernicious to the working classes, is, that government is to regenerate society, and exalt the individual to his true dignity. Government enables us to live together in society, and to make efforts for our own and others' welfare. But social progress depends on the spring in each man's breast, and not on the operations of the state. Government may be compared to the foundation and walls of a manufactory, which enclose and protect not the moving and guiding power, but the necessary condition of their action. The people must not look to it for what their own energies can alone effect. * * * *

MAXIMS.

The passions act as winds to propel our vessel—our reason is the pilot that steers her;—without the winds she would not move;—without the pilot she would be lost.

I should prefer being indisposed, to being idle.—*Seneca.* The evil of a slight fit of sickness is transient, while the bad effects of idleness are permanent, and lead to vicious habits.

The most sure method to be deceived, is to consider yourself more cunning than others.—*Rochefaucault.*

He who *swears* to obtain credence, does not know how even to counterfeit the man of worth.—*La Bruyre.*

Instruction inculcated by precept is tedious, by example it is quick and effectual.—*Seneca.*

I prefer ineloquent, or reserved prudence, to loquacious folly.—*Cicero.*

Moderate things last long.—*Seneca.* All the blessings of Providence, all the possessions of this world, may be exhausted by excess, or turned into evils by misapplication or abuse.

Good fortune and bad are equally necessary to man, to fit him to meet the contingencies of life.—*French.* Few men, who have not experienced the vicissitudes of fortune, know how to bear them with firmness—are fit to meet them.

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at No. 71 State-street, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 21st Oct. and 20th Nov. inclusive. Numbers under ten not noticed.

POST-OFFICES.			POST-OFFICES.			POST-OFFICES.		
Burlington,	Ct.	11	Frankfort,	Pa.	11	*New-York city,		93
Brookville,	Md.	22	Fenn's Bridge,	Ga.	22	*Philadelphia,	Pa.	117
Bladensburgh,	Md.	11	*Greenwich,	Pa.	22	*Pittsfield,	Mass.	53
Collinsville,	Ct.	12	Harvard,	Mass.	11	Rapid Ann,	Va.	10
Comstock,	Mich.	11	*Kingston, Uls.		17	Stanwich,	Ct.	11
*Eugene,	Ia.	155	Mayfield,	Va.	11	*Utica, One.		35
Elizabethtown,	Ky.	11	Murfreesborough,	Ten.	17	*Utica,	Ia.	22
Edwardsburgh,	Mich.	20	*Middletown,	Ky.	22	*Washington,	D. C.	76

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. Nov. 19.	Boston. Nov. 18.	Philadel'a. Nov. 19.	Baltimore. Nov. 16.
Beans white, bush	1 25.. 1 50	1 75.. 2 25	..1 75	1 75
Beef, best. cwt	5 50.. 6 50	5 50.. 6 25	5 50..6 50	7 00..8 00
Pork, per cwt	10 00..13 00	11 00..12 00	12 50	8 50..8 75
Butter, fresh, pound,	25.. 28	22.. 30	17.. 18	25.. 28
Cheese, pound,	8.. 10	8.. 12	10.. 11	
Flour, best, bbl	9 75..10 00	10 00..11 00	10 75	9 50..12 0
GRAIN—Wheat, bushel,	1 90.. 2 00	1 98.. 2 00	2 00..2 15	1 40..1 85
Rye, do.	1 18.. 1 25	1 15.. 1 20	1 14..1 25	1 02..1 10
Oats, do.	50.. 62	60.. 65	40.. 51	50.. 53
Corn, do.	1 06.. 1 09	1 05.. 1 25	99..1 01	98..1 02
SEEDS—Red Clover, lb	10.. 11	13.. 14	9.. 11	10
Timothy, bushel,	2 00.. 2 25	3 00.. 3 12	2 50..3 25	3 00..3 50
WOOL—Saxony, fleece, lb.	75.. 80	70.. 75	68.. 75	55.. 68
Merino, lb	55.. 68	60.. 70	60.. 62	48.. 55
1-4 and com. lb	40.. 50	45.. 65	40.. 55	36.. 40
Sheep,	....	1 75.. 2 75		
Cows and Calves,	18 00..45 00	23 00..42 50	....	18 0..50 0

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

VOL. III. ALBANY, JANUARY, 1837.—(67 STATE-STREET.) No. 11.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor*.
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—GEORGE C. THORBURN and ALEXANDER SMITH, New-York. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

☞ STATE AGRICULTURAL CONVENTION.

☞ In pursuance of a resolution adopted at the last State Agricultural Convention, we hereby give notice, that a State Agricultural Convention will be held at the Capitol, in the city of Albany, on the first Thursday of February next, at 4 o'clock P. M. at which "all persons are desired to attend who take an interest in agricultural pursuits."

D. S. DICKINSON, } *Secretaries.*
J. J. VIELE, }
January 1, 1837.

SECOND EDITION OF VOLUME I.

☞ The applications for our first volume are so numerous that we have concluded to print a second edition, on the same sized pages as the present volume. Applications for the volume will be registered, and the copies forwarded as soon as the volume can be printed. Price fifty cents.

☞ AN ADVERTISING SHEET,

Will be issued with our February number, provided there is patronage enough offered to defray the expense. All advertisements designed for insertion, should be sent in by the 20th, and cannot be received later than the 25th of this month.

TO THE PATRONS OF THE CULTIVATOR.

GENTLEMEN:—Custom sanctions the usage of an address, at the opening of each year, from a publisher to his patrons. On such occasions, it is usual to depart from the particular topics commonly treated of in his paper, whether they be political, scientific or agricultural, and to embrace the occasion offered for mutual gratulations and a free communion of feelings, interests and prospects. Although we speak generally to all our patrons, still we hope the remarks we are about to make, will, by each of them, be considered as addressed to himself, for, following a common pursuit, we look upon each and all of you as our co-laborers and friends.

It is almost three years, since we commenced the publication of this paper. By putting the subscription at a very low price, we expected to diffuse its circulation very extensively among our farmers. In a great measure we have succeeded, and now issue eighteen thousand copies of each number; but if there is any merit in the paper, and it fills the sphere of usefulness we designed for it, of which we have had many public and flattering testimonials, during its brief existence, still there is a vast void yet open, which neither our sheet nor any other fills, for there are thousands and thousands of farmers who never read upon subjects of agriculture, and whose conceit, ignorance or prejudice are insuperable bars to their improvement. In our labors, the object always has been, and will continue to be, practically, and, as far as circumstances will warrant, scientifically useful. It is to pay, in imparting intelligence, gathered from many sources, *ten fold*, for the little pittance we receive from each subscriber. Appreciating the benefit derived from reading, in the pursuit of our avocation, a natural warmth of feeling for those who labor with us in the same cause, would induce us to wish to communicate to others that information from the acquisition of which we have derived both profit and pleasure. It is likewise pleasant, incomparably pleasant, to feel, that we have succeeded in our efforts, and to have others acknowledge that we have aided the advancement of agriculture amongst us. And, gentlemen, addressing you as farmers, what shall we say, what can we do, to rouse us all to that igh achievement, that noble emulation, which becomes us as laborers in the first and most useful employment conferred by the creator on man? Each is held responsible to the community for the assiduity and success with which he conducts his farm. Each exercises an influence in the welfare of society. No business can be nobler than ours, for we have principalities of our own;—our farms are our domains, our houses our castles, our families our subjects, where we have free uncontrolled power for great good or evil. God will hold us responsible for a proper exercise of these important trusts, and we, under him, are the authors of peace or disturbance, of plenty or famine, of health or disease, with which the community may be blessed or cursed. We have simply to cultivate the faculties of our minds, and apply the powers of our bodies, to follow out His designs for the promotion of our happiness and prosperity, or, do nothing, and ignorance with idleness, which are always followed by poverty, want and disease, will soon carry us into all the horrors of barbarism, and debase us with the vices of demons. Industry is one of the greatest blessings ever imparted to man, when it enters with him into the arena of life, and leaves him only at its termination. In childhood, it opens his faculties—in youth, it fits for the labors and responsibilities of manhood—at mature age, it is health to his body—it gives peace to his mind—respectability to his name—comfort to his family—education to his children—to society it gives a good member—to the poor it is bread—whilst to a nation it is wealth, respectability and power. If God did ordain that in the sweat of our brow, we should earn our bread, he has wisely ordered, that all these, and many more blessings, should flow from its exercise. It is industry that exalteth a nation, but idleness is the curse of a people.

The last year has been marked by its peculiarities. Its winter gave us an unprecedented depth of snow—its spring was cold, and vegetation backward and unpromising—the heats of summer have only partially remedied the injury, but its autumn has been about as cold and wet as usual, with two or three deep snows. The effect of this weather on the vegetation of last season, was a diminished production of our crops. The prices, however, of all kinds of produce, have advanced, and what the farmer has not received in the quantity of the different kinds of grain, has been made up to him in its price, as all his products have been more in demand, and sold higher, than in preceding years. Indeed, experience sanctions the remark, that in no one season, are all our crops equally abundant. The weather suited to the winter crops, does not bring those of summer to the greatest perfection, and so vice versa, when the summer crops are good, those of winter are less so. It is the indication of Providence, that we are to be thrown upon our energies, both of mind and body, for the attainment of prosperity; and if He gives us a soil admirably adapted to the supply of our wants, and a climate suited to it, and to the maintenance of our healths, He makes us the agents of our existence and support. Faithfully to discharge this imported duty is a great aim of our creation. Let us, then, come nobly forward, cultivate both our minds and our farms with an assiduity, a care and perseverance that will overcome all obstacles, and convert this great state into the choicest fields of agricultural wealth and beauty. Its products will make it the granary of the world, and the enterprise of our citizens will send those products to the remotest extremities of the habitable globe. We will then reap that harvest, which is always allotted to those who act well their several parts in the duties of life assigned them.

THE THIRD VOLUME

Of the Cultivator will terminate with our next number. We state the fact thus early, that our subscribers, who wish to continue their subscriptions, may have timely opportunity to renew them before the commencement of the fourth volume, which will be on the first of March. We regret the necessity that requires us to demand the subscription monies in advance; but it *is* necessary to sustain the publication; and we therefore give notice, that the paper will be discontinued to all, after February, who shall not have paid for the 4th volume, or until they do pay for it, except in this city and its vicinity. The Cultivator is sent to 2250 post-offices, from many of which, from the impossibility of making small remittances, there are balances due us, which constitute, in the aggregate, a sum greater than the profits of our labor.

While writing this article, we received our mail letters of the day, of which five from different post-offices, are applications for the Cultivator, with *promises* to remit the subscriptions "the first opportunity," or when the subscriptions amount to a five dollar bill. Five a day, and this does not vary much from the average, would make more than 1800 in a year. And yet it would be discourteous for us not to comply, under such fair promises. We only want our patrons to appreciate the aggregate of these items, for which we depend upon the honor and punctuality of strangers, to become satisfied of the necessity of our rule, and to render to it a cheerful compliance.

We shall enclose memoranda of these balances in the present or next number, and have to beg, that they may be sent to us with the remittances for the fourth volume. The circulation of the present volume exceeds that of the preceding one, two to three thousand; from which it may be inferred, that our efforts to merit public favor have been generously sustained. Our edition is now 18,000. We trust that, for the sake of the agricultural improvement of our country, we shall not be obliged to reduce the number.

AGRICULTURAL REPORT FOR 1836.

The general products of the soil have been far less bountiful this year, than has been usual; yet there is still abundant cause of gratitude for the providential care which we have experienced, and a sufficiency for our wants and comforts, if we husband well our means, and expend them with prudence and economy. A series of propitious seasons is not to be expected, and perhaps ought not to be desired,—as they would tend to relax industry, and to introduce a recklessness in our expenditures and mode of living, prejudicial to individual enjoyment, and to the good of society. We mean, that the occasional chastenings of adversity are oft times more beneficial than an uninterrupted flow of prosperity. They serve to recall us from our wanderings, and to admonish us, that the true enjoyments of life are likely to be meted out to us only as we merit them, by the honest and lively exercise of our best faculties. They should teach us, too, our mutual dependence; and that the best way to secure the aid and good will of others, in emergencies which happen to all, is to deserve them, by first dispensing to our fellows, and to society, those good offices which Providence has enabled us to bestow.

The failure in our harvests may be ascribed to three prominent causes, viz:

The unpropitious season;
The depredations of insects;
The diminution of agricultural labor.

The first, as we have observed before, could not have been averted—it was a providential dispensation—but the magnitude of the evil which it has produced, might have been sensibly lessened, by intelligent industry. The unpropitiousness of the season resulted mainly from a severe winter, an excess of rain, at the critical period of seed time in spring, a diminished temperature in summer, and early frosts in autumn. The fields were generally too wet for the early deposit of seed, and when it was deposited, the germination and growth, from this cause, and the coldness of the season, were either prevented or greatly retarded. This was particularly the case upon flat surfaces, with retentive soils or subsoils. Ridging and underdraining would not only have diminished the evil effects of water, but they would, in many cases, have rendered the ground fit for the seed much earlier, and, by leaving it more dry and porous, have considerably increased its temperature,—a consideration of great weight in the culture of Indian corn, and some other farm crops. Underdraining enabled us to plant a level piece of land, naturally abounding in springs, with corn, from the 12th to the 15th of May, which ripened well, and was harvested without the intervention of frosts. Grounds well drained, are less subject to late and early frosts, than those which abound in moisture; while draining and ridging tend to counteract the evil effects of severe winters upon small grain. It is the water in the soil which causes it to heave by frosts, and the alternate expansion and contraction, which breaks and bares the roots of winter grain.

We will here refer the reader to our notice of Baron Von Voght's practice, in vol. 2, No. 1, of the Cultivator, as affording a good illustration of what *can* be done, to avert calamities to the farmer, incident to bad seasons. The Baron commenced on a worn-out farm, of a wet thin soil, which did not repay the labor bestowed in its culture, and by the kind of intelligent industry we speak of, in a few years he converted it into one of uncommon productiveness, which became noted as a *pattern farm* in the north of Germany. He in a great measure effected his improvements—1. by efficient underdrains; 2—by increasing the depth of the tilth; 3—by ridging; and 4—by alternating and turning in green crops. By underdraining, he tells us, he was enabled to gain three weeks in his spring work, and secure his seed and his crops from an excess of rain afterwards. By throwing his land, in autumn, into one bout ridges, for his spring crops, a perfect drainage was provided for the rains of winter, and the ground remained light and dry, for early cultivation. By increasing the depth of the tilth, or soil, he gave greater scope to the roots of his plants, increased the amount of their food, and provided against the contingency of drought. By turning in green crops, he increased the fertility of the soil, and rendered it more porous, and pervious to the genial influence of the air, the sun, and the dews. What *has been done* in Germany, *may be done* in the United States.

The insects which have been most prejudicial, are the Hessian fly, the grain worm, and the cut worn.

The best preventives against the depredations of the *Hessian fly*, seem to be, good soil and good culture, which shall ensure vigorous growth,—and sowing after autumnal frosts, by which the young wheat is believed to escape the fly in the fall. Some experiments, recorded in the third volume of the Memoirs of the New-York Board of Agriculture, and elsewhere, of sowing caustic lime upon the grain in the spring of the year, seem to encourage the idea that it saves the crop, at least partially, from the fly; but these will hardly justify us in pronouncing the remedy efficient. It is worthy of further trial; and we should like to be advised of any results that may strengthen the probability of success.

The *grain worm* is yet unknown in the south, and but partially known in the west. In this vicinity it has been far more formidable than the Hessian fly. It has greatly diminished the culture of the wheat crop among us, and caused a serious diminution in the product of the little sown. The insect abides in its destructive state but a short time; and the observations which have been made upon its habits give weight to the conjecture, that wheat sown early in the autumn, or late in the spring, will be most likely to escape its ravages;—the grain of the first becoming hard before the fly makes its appearance, and the late spring-sown not coming into bloom until the insect has assumed its chrysalis form.

The *cut worm* has been universally destructive, not only to corn and other grain, but to grasses and garden crops. The heavy snows, by protecting them from the severity of the winter, probably tended to increase the ravages of both the cut worm and the fly. Lime and ashes seem to afford the best remedy against the cut worm, applied in the ground with the seed, or, what we would prefer, at the surface of the ground above it. We have recorded several instances of these proving efficacious. In May we transplanted a hundred seedling Dahlias, and a number of cabbages, into our garden. The first night, ten or dozen of the dahlias, and a number of the cabbages, were eaten off at the surface of the ground by the the grub. We immediately covered the surface of the ground with powdered lime, and lost no more plants, save a couple, and round the stems of these the lime did not happen to be spread. The worm attacks the plant at or near the surface of the ground. The alkali not only presents a barrier at this point, but the soil underneath becomes saturated with it, and destroys or drives them away. We think there is reason in the remark of a correspondent in our last number, that if the worm can feed upon succulent grass, under the surface, it will not care to come above the surface to destroy the young corn, and that planting upon a fresh ploughed clover ley is a pretty sure way of escaping their depredations. We have often planted upon such a ley, without experiencing any injury from the grub; but we do not remember to have planted on an old sward, turned over the previous fall or summer, without having suffered severely from them.

The labors of agriculture have been diminished by the multiplicity of public works going on, which have employed a great number of laborers;—by the great extent of emigration, which transformed many thousands of producers into mere consumers,—and by the unprecedented spirit of speculation. Men have not been contented with doing well enough, when they believed their neighbors were doing better. This disquietude has unsettled many in their staid plans and habits of business, and induced them to quit their farms and their comforts, to become adventurers in the lottery of speculation, in which there is generally "two blanks to a prize." These circumstances combined, have abstracted considerably from the ordinary amount of agricultural labor.

From the causes which we have enumerated, principally, the staple grain crops, most essential to human subsistence, as wheat, rye and Indian corn, have been greatly deficient—we think their yield has not been half that of ordinary seasons, embracing in our view the whole union. Potatoes and buckwheat, too, which form large items in rural consumption, suffered severely from early frosts, in many districts, and both are scarce and dear. The consequence is, that every kind of farm produce is high, with the prospect of increase in price, unless relieved by seasonable supplies from Europe, where, fortunately, the harvest has been abundant.

The barley crop has been as good as common, though seemingly a good deal diminished in the quantity sown. Oats have been a good crop, and hay generally better than it was in 1835. The ruta baga and mangold wurtzel are gaining favor; their culture has been greatly extended during the last year, and the crops have been fair. Peas have made a good return. The garden has yielded indifferently, and melons, pumpkins and other vines have proved nearly a failure. Orchard fruits have been abundant in some districts, and scarce in others.

Amidst all the difficulties in tillage husbandry, the cattle and sheep farmer—the wool grower and the dairyman—have enjoyed uninterrupted prosperity. Neither grub, nor worm, nor a bad season, nor speculation, have diminished the products or the profits of their herds and flocks. Meats, wool, and the products of the dairy, have commanded a ready market, and the first and the last mentioned have advanced considerably in price. And we are glad to learn that these branches of our husbandry are on the increase. They require the least outlay, and make the surest, if not the greatest, return.

The objects in reverting to the errors and misfortunes of the season, should be, to counteract the ultimate evils which they are calculated to produce, and to prevent their recurrence. We therefore add, by way of improvement, that—

1. *To avert threatened evils*—let us economise in every department of our affairs. Let us give as little as possible to our domestic animals, of that which will assist to nourish and sustain our families; and to make up the deficiency to our cattle, let us use them well, and house them well. They will do with less with good attendance and kind treatment. Cut fodder will go further than uncut, and is withal better for the animal. Let us look to our grain and our roots,—take care that vermin do not devour the one, nor the frost destory the other. The potato may be largely substituted, in the economy of the family, for bread-stuffs, without impairing our comforts, or scandalizing our names. Let our means be dispensed with judgment and prudence, under the eye of the master, or of a trusty assistant. Let our fruits be also husbanded with care. They afford a wholesome and grateful diet, in a variety of culinary preparations, and are not lost upon farm stock. By adopting these precautions, we may do much to prevent or alleviate want. We owe the example of prudence to society, in the present time of scarcity, if we do not stand in need of it ourselves.

2. *To prevent a recurrence of scarcity*—we should *expect* bad seasons, and *prepare* for them. We should take counsel of our own, and of the experience of those who are successful; investigate the causes of failures, and endeavor to prevent their recurrence, by making ourselves better acquainted with the philosophy, or science of agriculture, upon whose principles successful operations in husbandry can alone be based. We should drain and ridge our lands, where they require it—husband our manures,—alternate our crops,—extend our root culture,—and resolutely determine, that if we cannot excel, we will at least attain to mediocrity in our calling. We shall thus combine, with a prudent regard for our own interest, a wholesome influence upon the habits of society.

Agriculture is an art—Man is the artist,—the soil his laboratory,—manure his raw material,—animal strength and machinery his power,—air, heat and moisture his agents,—and grains, roots, fruits and forage, his product.

Agriculture is a science—which teaches the artist the best mode of improving and fitting up his laboratory,—instructs him in the properties and economical use of his raw material,—learns him how best to apply his power, and to profit by his agents,—and it thereby enables him greatly to abridge his labor and multiply his products.

The art teaches the hands *to do*—the science *what* to do, and *how* to do. Art is the sail which propels the ship,—science the compass which directs her course. Without the sail, the ship will not "go ahead;" without the compass, her course will be erratic, and the profits of the voyage doubtful. With sail and compass, her progress will be "onward," her course direct, and her voyage prosperous.

WINTER STALL FEEDING,

Is the only profitable mode, in this climate, of fattening cattle for the shambles in winter. Were they suffered to roam in the yard and field, exposed to the wet and cold, it is very evident they could take on flesh but slowly, and but illy compensate the owner for the expense of high keeping. A certain quantity of food is required to prevent their growing lean; all beyond this it is the design of the feeder to have manufactured into meat and tallow; or as Bakewell was wont to say, converted into money. It is all important on the score of profit, that this process of converting herbage and other animal food into money, should be managed as expeditiously as a well judged economy will permit. Upon this, as upon every other branch of husbandry, we may profit much from the experience of others, if we are not too conceited and fastidious in our own opinions. Young says, that "men farm without an idea of the necessity of knowing what others have done before them; and it is very right that thousands of pounds should be lost, by feeding beasts in open sheds, by men who think they can learn nothing beyond the practice of old women, their grand mothers, while the board of agriculture has annually brought to light practices unknown to the same men who cannot see any use in such publications."

As to the relative advantages, in the economy of feed, of having fattening cattle tied up, we have the declaration of Mr. Ellman, well known as a distinguished herdsman, "that nine oxen, fed loose in a yard, have, by eating as well as destroying, consumed as much as 12 when tied up." Although much may be said in favor of keeping cows and store cattle, in covered sheds, instead of close stables, there is no doubt but fattening beasts thrive best when constantly confined in a warm stable, when proper attention to cleanliness is observed. We abstract the following rules, regarding the management of stall feeding cattle, from the 12th No. of British Husbandry:

"The first point is the comfort of accommodation; for in whatever way they may be placed,—whether under sheds or in close ox-houses, they should have the security of perfect shelter from the weather, with a certain degree of warmth; that is to say—if in open trammels, the sheds should be broad, the roof low, and the floor covered with an abundance of dry litter. We are, however, decidedly of opinion, that close stalls will further the objects more promptly; though we do not coincide with the idea, that it will be promoted by too much heat, and we should therefore recommend a moderate degree of healthful ventilation. In these stalls litter is, indeed, very frequently dispensed with,—or else sand, or any rubbish, is substituted for straw, but there can be no doubt that the animals enjoy the comfort of a dry bed as well as their master, and the more they seek repose in it the better.

"The next is strict regularity to the administration of food—both as regards the stated quantity, and the time of supplying it. The periods may be regulated as the feeder thinks proper, but. whenever adopted, should never be afterwards altered. The ox is a quiet animal, and those which are fed in the house soon acquire a precise knowledge of the exact hour at which it is usually given: if that be trangressed, or the customary quantity be not furnished, they become restless; but if the time and quantity be strictly adhered to, they remain tranquil until the next period arrives. If no disturbance takes place, they, indeed, then generally lie down and ruminate, and nothing will be found more to forward the process of fatting than this perfect quietude; wherefore. should the stalls be not only well bedded, but light should be very much excluded, the doors should be closed, all outward annoyance as far as possible prevented—and, in short, every means should be induced to promote complete rest, ease and contentment.

"Some persons serve it out as often as five times in a day; but the most prudent, and we think the better practice, is to give it as soon as possible after day-light, at noon, and sometime before sun-set; which enables the animals to fill their bellies, and to have time sufficient for that quiet digestion which is interrupted by too frequent feeding. In stating that the quantity should be moderate, we however allude merely to the not allowing the animal to have so much as will cloy him; he ought to have as much as he can fairly eat with a relish, but the moment he begins to toss it about, it will be then evident that the keenness of his appetite is satisfied, and it should be instantly removed.

"The last is thorough cleanliness. The ox-house should be opened before day-light, and well cleaned, both by pail and broom, from every impurity.—After the animals have been satisfied with food, whatever may remain should be immediately removed, and the cribs and mangers should be carefully swept out, and washed, if necessary; water should then be given without limitation."

As to the food, we will add, that fatting animals should have, in winter, grain, or roots, or oil-cake. Beef cannot profitably be made on hay alone. In Great Britain, where they boast of their beef, turnips are generally employed; in the United States the coarse grains are mostly used. As our turnip culture progresses, and progress we are confident it will, we shall be able to make cheaper, if not better beef. Assuming that 600 bushels of Swedish turnips will grow upon an acre of ground that will produce thirty-five bushels of corn, and that six bushels of the Swedes will fatten as much as one bushel of corn, it will be seen that one acre in ruta baga will go about as far in making beef as three acres in corn, with the further advantage, that the latter will cost four times as much labor in its culture as the former. Now we give an instance, in another column, of the Swedes yielding more than 1500 bushels to the acre, and the opinion of an intelligent feeder, that two bushels are worth as much, for feeding, as one bushel of corn. The mangold wurtzel, the carrot and the parsnip, may be all raised in field culture, at about the same expense per acre as corn; and they will give as great a yield, and afford as much nutriment as the ruta baga. The potato, whose culture we are all acquainted with, should be made to yield 300 bushels per acre; and these afford a far more profitable feed than grain. A bullock will consume from 120 to 240 lbs. of ruta baga per day; but if full fed with this or other roots they will consume but little hay, and have little or no occasion for water.

We shall abstract from the work above quoted, in due time, some remarks upon summer stalling, or soiling.

MANUAL LABOR SCHOOLS.

"It is essential to every system for giving a liberal education to all classes, that it should include the means of inuring the people to manual labor. By this labor the multitude must subsist. An education unfitting them to work, would make their future lives useless and dishonorably dependent." * * * "It is by *manual labor schools*, that this great achievement of civilzation and philanthrophy is to cease to be a dream, is to become a reality. In no institutions have the laboring classes such an interest. A philanthropist who desires the happiness and honor of giving the most effectual spring to social progress, cannot better employ himself, than in studying, improving and extending these."—*Rev. Dr. Channing upon Education.*

It is conceded on all hands, that it is important, as well for the pecuniary interests, as for the moral habits and good order of society, that a better system of instruction, than now exists, should be provided for the great classes of the laboring community: That instruction should no longer be merely mechanical, and limited to the rudiments of knowledge, and confined to the superficial rules of the pedagogue,—but that the faculties and powers of the mind should be developed, and directed to the ultimate good of society;—that our boys should be taught so much of the physical sciences, now become the handmaids of the arts, as will benefit them in their trade or business, and "enable them to comprehend the phenomena which are continually passing before their eyes;" that they should be instructed in their social and political duties—be made acquainted with our history, government and laws, and instructed in the responsibilities that devolve upon them as citizens of a free state. In fine, that their minds should be so disciplined in school, as to make them proficients in their business of life, and wholesome, useful members of society.

And it is also important, as regards the mass of population, that the hands be taught and inured to labor. The habit must be formed in youth. Practice alone makes perfect; and besides, few resort to labor in manhood, who have not been practised to it in youth. The time of youth is too short to admit of separate and distinct periods for improving the mind, and instructing the hands. The grand desideratum, therefore, would seem to be, so to blend study and labor, in the business of instruction, that they shall not interfere with, but aid and stimulate each other. To do this successfully, the study and the labor should have, generally, a common object. In no country can this proposition of rendering study and labor reciprocally beneficial to each other, and of imbuing the minds of youth with useful knowledge, be as readily adopted as in our own. The mass of population, whose condition we would improve, are farmers and mechanics. And experience has fully shown, that if we would improve the condition or the habits of any class, or of society at large, we must begin our work with the young, who *are to be* managers on the business stage of life. It is easier to bend the pliant twig than the stubborn bough.

Our remarks apply particularly to the business of agriculture, which gives employment to five-sixths of our population, and which mainly depends, for its future improvement, upon the measure of general and scientific knowledge which shall be brought to direct its labors; while this class of our population, from its numerical force, must ever determine our general character—whether we regard the social virtues,—or our political and moral standing as a nation. This clsss of our youth may, at least, be greatly benefitted in practical knowledge, while they are acquiring a good education at school.

That well conducted farms, connected with schools of instruction, and under the direction of competent, scientific and practical men, would tend eminently to improve our agriculture, we think no one will question. That to the mental improvement of youth, such as would fit them for the higher duties of society, such schools would superadd a knowledge of the science and best practices of agriculture, a useful qualification under all circumstances, and a certain and honorable resource under pecuniary misfortune, must be no less apparent. Such schools would do more—they would improve the moral condition of society, by rendering labor more honorable and more inviting, and by winning from the paths of idleness and dissipation, where their examples contaminate and corrupt, multitudes of the children of wealth, and transforming them into men of industry and usefulness.

The objection has been urged to the establishment of an agricultural *school*, that but few, comparatively, can share in its advantages, and these would of course be confined to the rich. The like objection would in a measure hold good, though it is not allowed to have weight, against all the higher literary and professional schools and colleges, for all these accommodate but a fractional part of our youth. Every class shares indirectly in the benefits of existing schools, though they are not immediate participators in their instuction, because they serve to promote the general knowledge and improvement of society. This remark would lose none of its force if applied to a school of agriculture: for, to embrace no other consideration, whatever improves agriculture, adds to our wealth, our commerce and our comforts. Besides, schools of agriculture may be multiplied, like other schools, to meet the wants of the public; and instruction in them can be afforded as cheap as it is in other manual labor schools. The great object is, first to make a fair experiment, and to demonstrate, in practice, their usefulness, and their adaptation to the state of our society, and to our civil institutions. The defect in our existing manual labor schools is, that although they inure the body to rural labor, they do not instruct the mind in the principles which ought to regulate that labor, nor, generally, in the best models of practice. The pupils work to save money, and to promote health,—not to learn a business which they expect to follow in life. Whereas, in a school of agriculture, all these objects might be combined.

But the advantages of an agricultural school would be more general than the advantages of most other schools, inasmuch as the results of its experiments in husbandry, and the new plants, implements and improved modes of culture, which it would introduce, would become common property, and a knowledge of them would be diffused throughout the community, by our agricultural journals; and because the pupils, settling down in different parts of the state, would carry with them this knowledge and these improvements, and by their practice, render their benefits available to all around them.

There is another consideration worthy of notice. The advantages of an agricultural school might be still more generally diffused, *by making it a place of instruction for common school teachers.* Who so well qualified to instruct those who are *to become* farmers, as those who are *already* farmers, both in practice and in science? In this sort of normal school the future teacher would learn farming effectually, if he could learn it any where. Here he would be instructed in his civil and political rights, and in his moral and social duties.—He would be accustomed to think, to investigate, to reason, and to form correct conclusions; and his physical powers would be nerved and disciplined by labor. Being effectually taught themselves, they would know best *how* and what to teach others; and if the school did not afford them an opportunity of teaching the practice, they could imbue the minds of their pupils with the principles of natural science, of eminent use in farming, and thus lay a substantial foundation to build a good practice upon. Suppose the state should adopt the policy pursued by the general government at the West Point academy—educate a number of promising young men—free of charge—on condition that they should devote a certain number of years, say four or five, at the close of their pupilage, *to the public service*, in teaching common schools, at a fair salary? The Regents of the University now dispense $3,000 per annum, towards educating common school teachers. This sum would maintain 60 pupils, with the labor they would have to perform, at an agricultural school. If each county should be permitted to send an indigent youth, of high promise, upon these terms, would not the state be as much benefitted, from this expenditure, as it is now ? This, to be sure, would be but a *beginning*. But to begin right is the great point. A project well begun is easily prosecuted.

Influenced by the considerations which we have sketched, a number of gentlemen last winter, applied for, and obtained an act of incorporation to establish a school of agriculture. To evince that it was not designed as a matter of speculation, the stockholders are restricted to a dividend of five per cent. per annum, upon their investment; and to render it a truly practical, as well as a scientific school, the law enjoins, that during the eight summer months, the teachers, as well as the pupils, shall appropriate one half of their time to practical agriculture. Owing to the death of one of the principal projectors, John B. Yates, esq., and the indisposition and pressing engagements of most of the others, but very little has hitherto been done towards filling up the stock. What will be the ultimate result of the project we do not pretend to say; but we have directed the attention of our readers to the subject, at this time, under the belief, that it is one of great importance to the community, and in the hope of interesting the public feeling in its behalf.

THE APPLE ORCHARD.

In a mistaken zeal to eradicate the seeds of intemperance, we are afraid that some, by destroying their apple orchards, are not only diminishing their innocent family comforts, but are seriously impairing their means of honest farm profits. We do not advocate the orchard on account of the alcohol its fruit affords on distillation—such a practice we deprecate;—nor will we urge *tetotalers* to cultivate the apple for cider, if they deem this liquor hurtful—though we still adhere to the "steady habits" of our New-England ancestry, in taking a glass of this racy beverage with our dinner—we will not advocate the orchard for the *liquor* it affords, but for the *food*—the beef, pork, milk, &c. into which its fruit can be readily transformed.

For the family, apples may be made to contribute alike to health, to pleasure, and to economy, and greatly to diminish the consumption of more costly food. As desert fruits, they are surpassed but by few in quality, and by none in durability; while in the culinary department, they afford a grateful repast, baked, boiled, roasted or fried, and, to borrow terms from the Cook's book, may be served up, with rice, flour, &c. in black-cap, charlotte, cheese-cakes, compotes, dumplings, fritters, festoons, floating islands, fool, fraze, glazed, in jelly, marmalade, pancakes, pies, puddings, preserves, poupeton, soufflet, in water, and a la Turque. In all these forms, we believe the apple is perfectly guileless; and in most of them may be indulged in by the robust and the delicate, and by rich and poor.

In the economy of the farm, apples are no less serviceable.—Every kind of farm stock feeds and fattens upon them. They serve as a substitute for corn in the piggery, for oats in the horse stable, and for slops in the cow-stall. They were evidently destined for the comfort of man; and because they are capable of being converted to a bad use, shall we, for this reason, reject the many benefits they are calculated to afford us? Because bread-corn is convertible into alcohol, is it less worthy of our care and culture as an article of food? Those alone who *abuse* the gifts of Providence, are obnoxious to public morals.

Our orchard, although a young one, is of great value to us. The early droppings of fruit were gathered by our pigs, and they contributed much to fit them for the fatting pen; and subsequently by boiling them with small potatoes, for fattening hogs, they have enabled us to save a good portion of our soft corn, which in ordinary years has not sufficed for finishing our pork, say 40 or 50 bushels, to deal out to our store shoats. Our orchard has enabled us to dispose of some fifty barrels of choice winter fruit, and to manufacture nearly as many barrels of cider, and it is now, in the form of apple *pomace*, adding greatly to the products of our dairy. On the first of December, we began to feed the pomace to seven milch cows, and have continued to feed them with a common wheel-barrow full per diem, and the effect has been *to increase the quantity of milk nearly fifty per cent.* The pomace has not undergone but slight if any fermentation.

The great indifference to orchards, we have no doubt, arises from an ignorance of the many advantages which they are capable of affording to the farm, and to the bad quality of the fruit which is generally cultivated. Tho nutritive properties of the apple depend upon the quantity of saccharine matter they contain, or the specific gravity of their juice; and the difference in flavor, and in their cooking properties, are not sufficiently regarded, and not generally known. We have probably the finest varieties of this fruit, of any country in the world, which come to maturity in succession, so as to afford a supply for the family the whole year; and yet probably not one family in a thousand enjoy them, or know of the existence of the better half.

WHO ARE THE ROGUES?

The frequent failures in the receipt of monies alleged to have been mailed to our address, particularly during the last year, induces us to publish the following memoranda of failures, for the benefit of the public and the post-office department. It expresses the dates at which the letters purport to have been mailed, the post-office, the amount enclosed, and the name of the post-master.

February 22,	Moorestown,	N. J.	$15,	G. Page.
March 18,	Caanan Centre,	N. Y.	3,	G. Bristol.
February 24,	Lysander,	N. Y.	10,	C. C. Hubbard.
April 4,	Lynchburgh,	Va.	5,	Benjn. Wilks.
April 8,	Jersey Shore,	Pa.	5,	S. Winchester.
October 3,	Thompson's Store,	Va.	5,	J. H. Fox.

Besides the foregoing, previous failures of $5 from Red-Hook, and Physic Springs, and one dollar bills from several offices, have occurred.

" *What is not eaten is given to the dung-heap*," is the excuse of the indolent and the prejudiced, for not cutting their cattle food. And we add, *what* IS EATEN *goes in like manner to the dung-heap*—MANUFACTURED *for use*—or, what is better, is converted into *meat, milk, &c.*

THE AMERICAN INSTITUTE

Held its ninth annual fair at New-York in October. The exhibition of American manufactured goods and machinery, greatly surpassed, in variety and extent, those shown at any former period. About 30 gold, and 130 silver medals were awarded for articles of excellence exhibited, besides some hundreds of diplomas. About 12,000 articles were shown, to 70,000 visitors. The Institute is doing an immense deal of good, and its acting members deserve much praise for the spirit and perseverance which they have manifested, and which we think have now triumphed over public apathy and indifference. These fairs are to the manufacturing and mechanic arts, what cattle shows are to agriculture—schools of instruction, and stimulants to industry, enterprise and laudable competition. They bring people together for useful purposes—to make them acquainted with each other, and with each others skill and workmanship—they telegraph knowledge of all useful improvements, and of the skill and genius of our citizens, and the resources of our country. The annual address was delivered by Caleb Cushing, Esq.; and previous to the delivery of the premiums, Col. Knapp made some remarks very pertinent to the occasion, and illustrative of the progress of the useful arts among us. These addresses, with a list of the articles particularly distinguished, are published in the November number of the Journal of the Institute. We subjoin some of the sentiments given at the anniversary supper, as sound in principle, and happy in expression.

"The state of New-York—The greatest, may she ever be the brightest, link in the chain of our confederacy.

"The city of New-York—Great in prosperity, but greater in adversity—the devastations of conflagration is only a prelude to increased magnificence.

"American manufactures—The vigorous offspring of national industry and enterprise—they are now repaying a thousand fold the parental affection which guided their infancy.

"The great science of political economy—The art of establishing, cherishing and perpetuating all other arts for the public weal.

"The compromise bill—A family reconciliation; a covenant of peace, which the honor and faith of the north and south are alike pledged to defend against all assailants.

"Internal improvements—They well rivet the union faster than a thousand political tinkers."

From Col. Knapp's extemporaneous remarks, we extract the following, descriptive of the spirit of the age:

"Yesterday, as I wound among this display of these magnificent articles, I happened to hear a young gentleman, of no ordinary appearance, make this remark: 'Why is so much parade made in the exhibition of these articles? Have we not always been making of them?' The answer I now give: No; we have not, until lately, *commenced* the manufacture of them. Look carefully to the history of our country; and the evils and vassalage we have suffered will rise in strong forms before us." * * *

"The whole of the workshops in this country, twenty years ago, could not have conjointly got up a fair worth seeing, of any thing out of the common course of heavy articles for field or ship use. In cloths, long after we had acquired the art of raising fine wool, and of spinning and weaving it well, the dyeing and dressing was not understood. Now, improvement is following improvement so rapidly, that which was once difficult, or thought impossible, is now an easy task. Man now begins to understand the dominion he received from his Maker—it was not only over the beasts of the field, and the fowls of the air, and the fisht of the sea, but 'OVER THE EARTH;' intending that mind should have power over matter, as long as matter should exist.

"*Mind has now commenced the labor of* SUBDUING THE EARTH, the first injunction given to man. Mind is making great efforts in the mighty exertion to subdue the earth. Steam-boats, rail-roads and locomotive engines, have made inroads upon both time and space. The fears that once disturbed the political economist, that the surface of the earth would become oppressed by a full population, are all scattered to the winds, by new methods of subduing the earth and of sustaining man. Ingenuity, science and industry have now done as much for the independence of our country, as our fathers' spirit, and our fathers' arms. With our internal improvements, finished and going on, and with our factories in full operation, we may put in some claim for national independence. No matter what foe may come, we can repel him, and live within ourselves. Knowing this, none will come."

A PRACTICAL TREATISE ON SHEEP—*intended as a guide to the selection, formation, and systematic management of the breeding, wether and grazing flocks, with observations upon the culture of turnips, and the utility and the advantages of the sheep-fold—by John Willsteed.* The above is the title of an 8vo pamphlet of 32 pages, just published at the office of the Common School Assistant, price 25 cents. The author, we understand, has for many years been an extensive sheep husbandman in Great Britain, and seems to be well versed in that business; and the pamphlet, in the main, purports to be a detail of British practice. Although not altogether applicable to American sheep husbandry, it nevertheless abounds in details that are calculated to be highly useful, and well worth the price demanded for it. The author seems not to be apprised, that turnips sown early in May, never here make a good crop, and that sainfoin is not suited to our climate and soil.

CATTLE AND SHEEP HUSBANDRY.

Opinions of eminent Breeders, Graziers, &c. collected and condensed for the Cultivator.

The horns of cattle are general designations of distinction and variety, and are supposed to denote particular qualities. Thus, English bullocks are distinguished as long, half long, short, and middle horned, wide or broad-horned, polled or hornless. The grand distinctions are however the long and the short-horned, which seem generally implicated with peculiar properties of milk and hide. Thus the long-horned cows produce a richer milk, in course a greater proportional quantity of butter and cheese, and a thicker hide, than the short-horned; which last, however, afford larger quantities of beef, milk and tallow. The flesh of the long horns is generally more compact and solid, and finer in the grain, than that of the short; whilst in the last particular, fineness of grain, they are both far excelled by several middle-horned varieties—*Lawrence*—as the Devons for instance. The rule has exceptions. The Norman and Alderney cows present a very strong one. With short horns, they afford a very rich milk, equal to the best long-horned cows, with a larger proportional quantity.—*Ib.* We have found the milk of a herd of cows, under the same keep, tested by the lactometer, vary in the proportion of cream, from nine to fifteen per cent.

The colour of cattle seems perfectly immaterial, in the view of utility, unless we allow the common exception of white and light colours, on the score of tenderness. I have frequently seen black cows the largest milkers; and have at this time before my eyes an ancient one of Holderness, milking at the rate of nine gallons a-day. —*Ib.* The breed first introduced into this state by the original Dutch settlers, is believed to partake largely of the Holstein. It still affords many first rate milkers.

The appellatives, most common are ox, bull and cow—bull and heifer calves. A young castrated male, after the first year, is called a stot, stirk or steer—at five years old, an ox. A female, after the first year, is called an heifer, or quoy; at four years old, a cow. Course and sturdy cattle are often termed runts. Bullock is the general term for all full grown cattle, male or female, fat or lean.—*Ib.* These difinitions are given as often necessary to understand British writers upon cattle.

The criteria of a good milch-cow, are, according to Lawrence, whatever be the breed, a capacious and thin udder, large teets, with a large and distinct milk-vein; accompanied with a fineness of the head and chops, thinness of the neck, and somewhat gaunt and meagre appearance of body, promising no great tendency to fatten. In common, where great tackle is found, that is, a fine and large udder, sufficient milking need not be doubted—if food to make milk is abundant.

By improvement of the breed of animals is meant the gradual change of form and property, in their progeny, until they shall arrive, as nearly as possible, to a certain standard of presumed perfection. This is to be effected on the principle of *like producing like*, by a conjunction of male and female, of the desired species, form and properties, some steps or points being gained in every procreation. The male, of course, being able to multiply likeness to such extent, must be the prime instrument in the business. It is therefore of the utmost consequence that he be thorough bred, or thorough shaped; and the female ought to be selected with the strictest care, since, although her qualities cannot be considered of so great consequence as those of the male, yet, it must not be forgotten, that perfection is not to be attained, but from perfection on both sides.—*Ib.* These considerations are of much moment to those who endeavor to excel in their animals. Nothing, continues our author, can be more groundless than the notion, "that all breed goes in at the mouth," inferring that all excellence depends on keep. It would be equally rational to say, that size and form depend on food.

The importance of a good breed, should induce the farmer, says Lawrence, as the safest and shortest course, to part entirely with an inferior stock, and to replace with a species nearest to perfection, at any price. For, he adds, a ram, which from his perfect shape and quality will improve his progeny immediately, to the amount of one-quarter additional value in each individual, taking into account the extent of the compound, progressive improvement, *may be far cheaper at fifty, than a common bred one at a single guinea.*

The Devons are the speediest working oxen in England, and will trot well in harness. In point of strength they stand in the fourth or fifth class. Their excellence for labor is best proved by the fact, that in North Devon and Somerest, where they most abound, the fashionable substitution of horses in farm labor has made no progress. They are in high repute as feeders, and for the superior excellence of their beef, which has been acknowledged for ages. Robert Bakewell paid them the highest compliment they could possibly receive, by declaring to an inquirer, that the Devons could not be improved by any alien cross. Being a hill cattle, they are hardy, and better winterers than their appearance would seem to warrant.—*Lawrence.* Among the best herds of Devons in the United States, that we are apprised of, are those belonging to Messrs. Hunberts, of Winchester, Ct., and to Mr. Patterson, near Baltimore, Md. We also saw fine animals of this breed on the farm of Mr. Garbert, in Wheatland, Monroe.

The Hereford cattle partake of Devon blood, though larger than the Devons in size. They are the most powerful working oxen, and are nearly as quick upon the foot as the Devons. They are good feeders, profitable to fatten, but bad milkers. We do not know that any Herefords have been introduced into the United States, though, as working oxen, their propagation here would be of public utility.

The Holderness, according to Lawrence, originated in the 18th century, and were a cross of the old short-horns, or Teeswater, with the Norman or Alderney bulls. The cross was a fortunate one. "Never was there a more fortunate cross. In no other country does exist so excellent a breed of cattle, as those of Holderness, including all the useful properties. In one, perhaps the most importent respect, great milking, they are superior, and even without rivals. Their beef is finer than that of the old short-horned breed, and they fatten much earlier and quicker, carrying still a vast depth of natural flesh, and tallowing within in the first degree. They have both speed and strength enough for labor, and their shoulders are well formed and well posited for draught." They are beautifully variegated in colour, spotted, striped, sometimes *shutted* red and white, or black or brown, or white. They rival the best long-horns in the cheese and butter dairies, and for suckling are unrivelled. These are well known as the stock generally kept by the London cow-keepers. They are great consumers; but, says Lawrence, "it matters not how much cattle eat, if they pay for it." The Holderness differs from the "improved short-horns."

The Alderney and Norman cattle, are of diminutive size, and not distinguished for beauty, being thin, hard and small-boned, and often very awkwardly shaped. This description refers particularly to the cows. They are however among the best milkers in the world, as to quality, and in that respect are either before or immediately next to the long horns; but weight of butter for inches, they are far superior to all. The Norman cattle make fat quick, and their beef is of the first class, fine grained, high colour and savoury.—*Lawrence.* We saw, in 1835, three fine Alderney cows, just imported, in the neighborhood of Boston.

The *Tree-fold* is recommended the in New Farmers' Calendar. It is a circular enclosure of thickly planted trees, suppose of eight acres extent, the central acre remaining unplanted, as a sheltered fold for cattle, with sheds or out houses; the access to be made by a serpentine road, for the purpose of preventing a current of wind upon the fold. The beech and white oak, or an intermixture of evergreens, are preferable, an account of their retaining their foliage during winter. This suggestion merits consideration, particularly of large sheep farmers, and upon new farms a suitable reservation may be made of the younger growth of forest timber. In the prairie districts of the *far* west, where the winter blasts sweep over a vast expanse of level, and often naked country, the *tree-fold* will be particularly beneficial; and where they cannot be preserved, they should be planted, without delay, by the new settler.

Dairy statistics.—In Cheshire, stock is esteemed only as it profits the dairy, cheese being the great staple—and cows for the dairy being the prime object. Their favorite points, "large, thin-skinned udder, and full milk-veins; hide not material, shallow and light fore quarters, capacious behind, wide loin, thin thigh, white horns, long thin head, brisk, lively eye, clean chops and throat, general symmetry and beauty no object. Cows held to be in their prime from four to ten. Calves run with the cows three weeks, and are then fed on whey, with a little meal or lintseed. One quart of meal, mixed with forty quarts of whey, is the daily allowance for ten calves. Hay the first winter, straw the next. Cows housed at night in the winter, and turned to grass in good condition. Hours of milking, in summer, six, morning and evening. The farmer attends milking, to see that the work is effectually done, as "each succeeding drop, which a cow gives at a milking, excels the preceding one in richness." A northern aspect perferred for the milk-house, sheltered by buildings or trees, where a uniform temperature of air can be preserved, with the aid of a stove in winter. The product of a cow is 300 to 500 pounds and upwards of cheese. One gallon of milk makes one pound of cheese; and the dairy-men are better satisfied with one that gives eight quarts per day, through the season, than with one that gives more, as in the latter case the milk is generally thinner, and the cow becomes sooner dry. The best winter food for cows is good hay, assisted by root crops. The hay being mixed with straw, will, in exact proportion to the quantity of straw, deteriorate the produce of the cow. They find here, as elsewhere, that great milking and great proof in beef are incompatable.—*Law.* Well saved corn-stocks, if cut and moistened, are thought equal to hay.

MINERAL POISONS

Are sometimes taken with our food, by reason of the decomposition of the lead and copper, of which many kitchen utensils are either composed, or constituted in part, without our apprehending the cause of the maladies they produce. Although the deleterious effects of these minerals are often slow and imperceptible, yet medical science has pronounced them almost certain, and the decision has been confirmed by experience. In whatever form lead may be introduced into the human body,—whether its vapors are inhaled through the lungs, absorbed through the pores of the skin, or whether it be introduced with our food or drink,—it is equally injurious and fatal. Copper, or the verdigris which it affords on decomposition, although not so deleterious, is nevertheless poisonous. Lead produces a spasmodic cholic, or dry belly-ache; and copper produces vomiting. The antidotes recommended for the first are antimonial emetics, and afterwards liver of sulphur and vegetable oils. And for the latter poison, Cooper prescribes liver of sulphur, (sulphuret of potash.) These metals are decomposed by the acids, sometimes by saline compounds, and by oxposure to air and moisture.

Lead is used, though less now than formerly, and less here than in Europe, for cisterns, pumps, water-pipes, milk pans, and as a component in the glazing of red and cream colored earthen-ware, which last are used for milk, pickles, preserved fruits, jellies, &c. Water, in a pure running state, has no sensible action upon these metals, but it may, from adventitious causes, acquire this power, as from vegetable matters mingling with it, which afford carbonic acid; and, when at rest, and accessible to air, water corrodes or oxydizes them. Numerous cases are cited by Accum, of sickness and death, caused by the use of lead and copper vessels. The best and only security against the deleterious effects of lead, is wholly to abandon the use of all culinary utensils, made in whole or in part, of that metal; and to carefully avoid using, for pickles, preserves, meats, liquors, or other substances containing acids or saline matters, glazed earthen ware, in which lead forms a component part.

There are many utensils in use, fabricated of copper, though the precaution is adopted of coating their insides with tin, to preventthe contact of acids with the copper. It is contended by Willich, that the tinning of copper vessels is not sufficient to defend them from the action of the air, moisture and saline substances; even when strongly coated they are liable to rust. So dangerous were copper utensils considered in Sweden, for culinary uses, that in 1756 the Senate prohibited their use in the army and navy. At best, the tin will get off, by accident or wear; and *then* they should not be further used till they are again tinned. Nor is this all—the most scrupulous attention should be paid to cleanliness, when copper vessels are used—to leave no liquid in them longer than is necessary for the purpose of cooking—for the metal is more readily decomposed by liquids, when cold, than in a heated state.

Accum cautions parents against purchasing toys, in the coloring of which verdigris and lead are often employed, and which children are apt to put into their mouths.

LABOR BENEFICIAL TO STUDY.

We find in one of our exchange papers, an extract from Weld's report on manual labor—a report which we have not seen, but which we should be pleased to possess—going to show, conclusively, that labor *does not retard*, but *promotes*, the intellectual progress of students, when they alternate it with their studies. We consider the general recognition of this principle so important to physical health, so consonant to republican habits, and so salutary in its influence upon agricultural and mechanical labor, that we cannot refrain from presenting, in a condensed form, the opinions, in this matter, of some of the most eminent scholars and teachers of our land. The question seems to have been put to these gentlemen, whether three hours labor in a day would retard or promote the intellectual improvement of young men engaged in acquiring a literary education. The answers of the undernamed, are indicated as follows:

Rev. Dr. Greene, Philadelphia.—It would promote the acquisition of knowledge in a very important degree.

Prof. Keith, Alexandria.—It will not retard progress in study.

Prof. Ripley, Newton.—It will greatly promote progress in study.

Rev. Dr. Ware, Cambridge.—It would promote the intellectual progress of students more than sufficient to compensate for the loss of time.

Pres. Griffin, Williamstown.—It would accelerate their progress in learning.

Pres. Chapin, Washington.—It would rather accelerate than retard progress in study.

Pres. Fisk, Middletown.—It would not retard progress in study.

Pres. Humphreys, Annapolis.—The remaining time will acquire an increased value, enough to make up for the loss.

Hon. T. S. Grimke, Charleston.—Three hours exercise and nine hours of study, will accomplish far more in a series of years, than fourteen hours study and no exercise.

Pres. Cassett, Ky.—I have never witnessed such rapid progress in study as that which has been made by the manual labor students of this college.

Prof. Woods, of Andover—expresses a like opinion, in regard to the beneficial effects of labor upon literary students at Andover.

If one-fourth of a literary student's time can be usefully appropriated to labor, to promote health, and impart new vigor to the mind, how much greater would be the advantages to students intended for agriculture and the mechanic arts, if, in the time allotted to study, they could acquire a practical knowledge in their future business. Now, if we vary the proportions, and give to students who are destined to live by agriculture or the mechanic arts, an equal portion of time for study and for labor, their progress in their studies would not be likely to be seriously retarded, while they will have made good progress in acquiring a profession.

A new locomotive power is on trial in New-Jersey, invented by Mr. Emmons, designed to be employed on rail-ways. The propelling power consists of springs, of which 500 are attached to the machine. The speed is alleged to be from 80 to 100 miles an hour!

Rohan Potato.—In our July number, we spoke of the remarkable properties of this new variety of the potato, and stated that an esteemed friend had obtained a few of these tubers, at considerable expense from France. A letter before us advises: He received fifteen, of the size of common potatoes, very much grown on their passage, and planted them about the first of June. They were gathered in October, the vines still green, and the product was two barrels; but the crop had suffered from cows, from pigs, and from drought; but for these drawbacks our friend thinks he should have had five barrels, from the fifteen seed potatoes. He proposes to make all the crop he can next summer, and to send the product to the seedsmen, that they may be extensively propagated, considering them a great acquisition to our husbandry. We have been kindly furnished with a brace of tubers, by Mr. Van Benthuysen, who brought them with him from France.

Cutting up corn.—We find in the Genesee Farmer notable proof of the superiority of *cutting up corn*, over *topping* it, as is yet the common practice, furnished, we believe, by Mr. Gaylord. "We know," says the narrator, "of two pieces of corn, owned by the same individuals, planted nearly at the same time, and both equally promising, when their progress was stopped by the frost of the 5th. One of the pieces was immediately topped, and the other was, as soon as possible, cut up by the bottom and stacked. They were both husked a short time since, and the owners assured me, that, contrary to the expectation of many who witnessed the different modes of curing, *they should get at least* ONE-THIRD MORE *sound corn from the cut up, than from that which was topped and left on the hill.*" How much *sound* corn has, according to this test, been lost to the state, by persisting in the old mode of topping corn, and how many thousands of dollars might have been saved by a different course! A little *book farming* would have explained the cause of this wonder—would have satisfied our farmers, that the true food, which enlarges and matures the corn, the elaborated sap—*always descends*, but *never ascends:* that by topping corn, no secretion take place in the grain after the leaves above are cut off—and that we immediately deprive it of further nourishment, while by cutting up the entire stock, the grain continues to draw sustenance, for some days, from the leaves and stock above it. A plant can never increase in size above its upper leaves. Strip the leaves from a branch, and you stop its growth until new leaves are unfolded, and if there is not vigor enough in the plant to unfold them, the limb dies. As a further proof that the stock feeds and ripens the grain, after it is cut at the ground, we state a fact recently communicated to us. Mr. Hoyt, of this city, cut some corn at the ground for experiment, last fall, while the grain was in the milk, and before it had become even partially glazed, and after it had been cured in stook, he planted some of it, and ten-twelfths of it grew.

Potash from the Beet.—M. Dubunfaut, a French chemist, has discovered that the beet, after extracting the sugar and molasses, will yield good potash, but whether from the residuum of the molasses, after distillation, or from the pommace, we do not understand. The product is about one pound from 100 pounds of the beet root. At this rate of yield, the beets annually manufactured into sugar in France would afford about 15,000,000 pounds potash, worth from eight to nine millions of francs, or from one and a half to one and three-quarter millions of dollars. So say the prints.

Fine Arts at Geneva.—M. de Condolle, the celebrated Botanist, had borrowed from a Spanish gentleman a very valuable collection of drawings of American plants, from which he was lecturing. He announced to his hearers that the collection had unexpectedly been sent for, and expressed his regret at the circumstance; on which the ladies, who attended his lectures, offered to copy the collection. The drawings, 860 in number, and filling 13 volumes, were actually copied in a week, by 114 female artists; this number volunteering in a city containing a population of but 14,000. The fact speaks highly favorable of the progress of this elegant art among the Genevese, and of the spirit and taste of the female portion. It is well enough to say here, that drawing constitutes a branch of education in Prussia, Bavaria, Wirtemburgh, and in many other of the German states, even in the primary or common schools. It is not only an elegant, but a useful accomplishment, in every department of life, and it is one which might, with great propriety, be more extensively cultivated among us. It affords instructive recreation to the young, in hours of relaxation, when the mind most wants light and useful employment.

CONDENSED ARTICLES.

Inventions.—At the late Kennebec fair, several new implements and machines were exhibited, which are favorably spoken of. We abstract from the Maine Farmer a notice of the following. 1. *Pitt's Stone Cutter*—a machine moved by water, steam or horse power for dressing stone—which performs the work well, and greatly abridges manual labor. 2. Two *Cultivators.* The committee speak highly of the utility of these upon the farm. We are pleased to see them coming into more general use. 3. An *Augur* for boring for marl. Whatever tends to the discovery and application of marl, promises to be useful.

Rat Stopper.—A correspondent in the Maine Farmer recommends, having efficiently tried it, the deposit of a stratum of blacksmith's cinders where rats make their holes in cellars or under walls. They cannot penetrate it.

To relieve cattle choked with apples, &c. a correspondent in the same paper recommends drawing out the tongue of the animal and putting a small quantity of gunpowder down the throat. It causes the animal to cough violently, and throw out the obstruction in the passage.

Bee-hives, on improved models, so constructed as to enable the proprietor to take honey at pleasure, without destroying the bees, are so common, as to leave no excuse for longer employing the old hives, which render it necessary to destory the bees in order to get the honey. We have heretofore spoken of Perkins' patent. A swarm of bees put into one of these in June, has accumulated, by computation, 150 pounds of honey. We have received a pamphlet on the management of bees, comprising the description of a patent hive, invented by Mr. John M. Weeks, of Salisbury, Vt., which evinces, in Mr. W. a familiar acquaintance with their habits, and the best modes of management.

Sugar is said to contain more nutriment in a given bulk, than any other known substance.—*Parkes.*

Buckwheat straw.—A writer in the Farmer and Gardner insists, that buckwheat straw "is better for milch cows than the best timothy hay, and that his cows eat it with equal avidity." Of course, to be palatable and nutricious, it should be taken care of and housed or stacked, and not left exposed to the wasting influence of storms, in the field or yard.

Product and profit of a crop of Ruta Baga.—R. Gordon tells us, in the Farmer and Mechanic, printed at Cincinnati, that he has, the last year, raised 1,510 bushels on an acre; that he has fed his cattle upon them; that he fed one pair of working oxen with two bushels of ruta baga, and another pair with a bushel of Indian corn, (we presume a bushel of ears,) per day; and that he is satisfied two bushels of the Swedes are *better* than one bushel of corn for working oxen, or other neat cattle. Here then an acre produces of cattle food what is equivalent to *seven hundred and fifty-five* bushels of corn in the ear, or 377½ bushels of shelled corn! If after this our farmers do not believe in the profit of the ruta baga crop, why then—let them disprove it in practice. We often miss in our corn crop, and other crops; but this does not prevent our trying again, because we know we *can* succeed. Let us show the same perseverance, though we fail once, in the culture of a crop, which there is much evidence to believe, will ultimately become very profitable. We have kept six oxen more than three months, and in the mean time *fattened* them, upon ruta baga and a little hay—they would eat nothing else. They did not even require water.

We invite an attentive perusal of Mr. Ball's communication in to-day's Cultivator. Mr. Ball is a young men, and we believe was brought up to mercantile business. It will be readily seen that he has taken hold of his new business in the right spirit, and with the prospect of brilliant success, and that mind, and system, and capital are all made to combine to increase the profits of farm labor. Mr. B.'s method of keeping a journal, so that he can at once ascertain the profits of any field or any crop, is worthy the adoption of all who have any ambition to excel. Mr. B. has rendered a valuable public service in making this communication. We accept, with great pleasure, Mr. B.'s offer, and shall look, with interest, for its fulfilment.

In speaking of the short summers in the higher regions of Sweden, a traveller remarks, that "when the snow begins to dissolve, the inhabitants are in the habit of strewing charcoal over the snow, with the view of attracting the rays of the sun, and thus hastening the preparation of the soil for seed."

Artesian Wells.—We suggested to our western patrons the probability of their obtaining an abundance of good water, by boring. We notice that this plan has been resorted to in the city of New-York, with much success, where several borings have been made, and others are in progress. Supplies of good water have been obtained at 30, 80, 90, 100, and 400 feet, soft and pure. One of these wells affords 120,000 gallons daily, and another 6,000 gallons an hour.

The division of labor produces a great saving in many of the arts. It enables the workman to concentrate his skill upon a single branch, and to perform his work better, and do more, than if his attention was drawn to several branches, and it saves time in going from one branch to another. It is even adopted to a considerable extent in husbandry. In Britain, where the plough may be used at almost any season of the year, there are professional ploughmen, who do little else but plough. Hence this branch of farm labor is there performed in a very perfect manner. But it is in the mechanic arts that the division of labor is capable of being carried to the greatest extent. In the manufacture of pins, there are seven different processes, and seven sets of workmen are employed to perform them, neither knowing any thing of any process but the one in which he is engaged. The laborers are adapted to the work; and while the man who tins the pins earns 6s. sterl. per day, the boy amployed in twisting and cutting the heads is paid but 4½d.—Were the first to be employed at 6s. per day, in performing the whole of the processes, the pins would cost, as Babbage tells us, three times and three quarters as much as they do by the present division of labor. Every purchaser of pins, therefore, is benefitted by this division of labor. In the manufacture of watches, this principle is perhaps carried to the greatest extent. It was stated before a committee of the House of Commons, "that there are a hundred and two distinct branches of this art, to each of which a boy may be put apprentice; and that he only learns his master's department, and is unable, after his apprenticeship has expired, without subsequent instruction, to work at any other branch. The watch finisher, whose business it is to put together the scattered parts, is the only one, out of the hundred and two persons, who can work in any other department than his own." These facts suggest to the farmer the propriety of a division of labor, as far as is practicable, upon the farm, and of employing each laborer upon that branch which is best adapted to his strength and skill.

NOTICE OF CORRESPONDENTS.

Hay-Press and Plough.—A correspondent wishes to purchase a first-rate hay-press, and he asks us the cost, when fitted up for use. He also wants the name of the plough "best calculated to turn a large furrow completely over, and to a depth of at least four inches." Anthony Van Bergen, Esq. of Coxsackie, has in use an excellent hay-press, made in his neighborhood, and we beg to refer our correspondent to him for information, as we have had no opportunity of judging personally of the different kinds in use, or of knowing the price at which they sell. We have had several ploughs in use, and we are free to say, that of those we have tried, we think the Scotch plough, as made by Mr. Craig, of West Galway, the best for turning green sward handsomely, when guided by a good ploughman, though it does not turn a very broad furrow, nor turn the furrow "completely over," two qualities which we think should not be desired except on the unwrought prairies of the west.

A. Dey, Esq. 63 Cedar-street, New-York, wishes to hire 300 acres of meadow land ploughed early in the spring—particulars in our advertising sheet in February.

CORRESPONDENCE.

The following communication is from a farmer, whose pen has eminently contributed to the improvement of our agriculture. We commend it to the careful perusal of our New-York readers; and bespeak for the proposition with which it closes, the cordial support, and prompt action, of all who would "*Speed the Plough.*"

LEGISLATIVE AID TO AGRICULTURE;

OR AN APPEAL TO THE FARMERS OF NEW-YORK.

The United States exhibit the singular spectacle, a spectacle which foreign nations behold with amazement, and are utterly unable to comprehend, of a great people not only free from debt, but with some fifty millions in the treasury for which the government has no possible use. Whatever may be thought of the policy of continuing a state of things that by its natural operation shall produce such a surplus revenue; or the expediency of distributing such surplus when it happens to arise; none can doubt the propriety of the several states making the best possible use of the part allotted to them respectively, when such part comes into their possession

The state of New-York set a patriotic and successful example in the career of internal improvement, by adopting plans, which, though for a time seeming severely to task the resources of the state, have eventually shown the wisdom and far-reaching forethought of the men who carried that system into effect. Through the agency of the "Erie canal, that glorious monument to the glorious memory of De Witt Clinton," and his able coadjutors, a debt of twelve millions has been paid—the salt and auction duties have been restored to their original destination of meeting the civil expenses of the state, and the still accumulating revenue is fast placing New-York in the situation of the United States, that is, with a surplus beyond any reasonable, or probable expenditure.

At such a moment, with a full treasury, and increasing means for a continual supply, New-York is called upon to receive her quota of the surplus money of the United States; a sum, according to the most probable estimates, of at least six millions of dollars.

The important questions are now forced upon us; what disposition shall be made of this large sum of money; and to what uses shall it be applied? Shall the money lie idle in the treasury, or shall the state take and use it as its own?

It should be remembered that this money is not given to the state; it is only deposited with it, or rather loaned to it; and is of course liable to be called for at any time, should the policy or the wants of the general government require it; and though such a contingency is not probable, the possibility of such an event should not be lost sight of, in the distribution. In taking the money, the state will undoubtedly use it as its own, appropriating it to such purposes as shall most benefit the whole state, and at the same time best ensure the means of repayment if ever called for.

Shall this six millions be devoted to the prosecution of our system of internal improvement? We think not: certainly not the whole. The works at present under the control of the commissioners, are already sufficiently extensive for their proper management by the state; which ought not to run the risque, as has already been done to some extent, of hazarding the resources already existing, in unprofitable and unnecessary constructions. If an extension is required, let it be done by companies; the state reserving the right in all cases, of assuming the direction and control of such works, at any time, a right to be vigilantly guarded, and rigidly exercised, whenever occasion requires.

There is but one remaining work properly belonging to the state, and which should be entered upon without delay, and that is a ship canal around the Overslaugh;—a work for the interest of all, and for which an appropriation from the surplus money would, we doubt not, meet the cordial approbation of all.

Some months since, when there was a prospect of receiving only some one or two millions of dollars, it was proposed in some of the leading journals, to add the sum to the Common School Fund, and thus devote it to the great purpose of education; a proposition, we believe, received with universal favor. Two millions added to that fund, would enable the state to distribute more than double the sum that is now divided; or in other words, would defray about two thirds of the expenses of the common schools. Would it be politic or useful to do more than this? In nothing is the maxim, that 'that which costs nothing is valued less," more true than in education; and we think experience shows that much more could not be done without lessening too much the interest which parents and guardians should feel in the expenditure of their money. If you would interest a man in any cause, touch his pocket. For the state to pay the whole expenses of our common schools, would have a direct tendency to ruin the whole system. While therefore education should be viewed as all important, we think that the addition of two or three millions is all that can at present profitably be employed by the common school fund.

Provision, at the time deemed fully adequate to the purpose, has been made for a full survey of the state, with a view to the development of its resources, geographical, geological, mineralogical, and agricultural; and we hope that no ill timed parsimony will prevent the execution of the whole plan in the most complete and thorough manner, or hinder the results of the examination from being given to the world, in a form worthy of the subject and the state.

But after ample appropriations for the above mentioned objects, one or two millions will remain to be expended, a bone for factions to contend about, or, such is the selfish tendencies of our natures, an inducement to the creation of new offices, or the bestowment of exorbitant salaries.

What interest then remains upon which the surplus in the treasury can be worthily and profitably exerted?—what department of industry, which more than another demands and deserves the effective of the state? The true and ready answer is, AGRICULTURE.

The situation of New-York—her facilities for internal communication—the habits of her citizens—and above all, the excellence of her soil, mark her as an agricultural state. Here is the great secret of her power, the source of her energy and wealth, and to that point must her legislators look, if they intend she shall retain the proud title of the Empire State.

Agriculture lies at the very basis of all prosperity; of civilization and social order. Without it neither can exist to any extent. On it commerce is mainly depending; it furnishes between nations the objects of barter and exchange; and on its success, the merchant, the manufacturer, and the professional man, are alike dependant.

Such being the facts, and such the importance of agriculture, we may ask, whether what the state has hitherto done for the farmer, is in any degree adequate to the real magnitude of his claims. By a policy, as wise as it was beneficial, several years since, a few thousands annually were distributed among county agricultural societies; and for every thousand so divided, the statistics of the state show that millions have been returned. Provision has been made for *one* agricultural school, and here our legislators, as if they were fearful the treasury would be exhausted, or frightened at their own unwonted liberality, have allowed the matter to rest. Has this course been just to the people, has it been generous?

Now then, when by the receipt of millions, every anticipated or probable deficiency of funds is done away; when every other interest has been, or may be amply provided for, and the treasury still remain overflowing; let the voice of the agriculturist be heard, and the class to which all others are indebted, not find their well founded claims rejected.

What do we as agriculturist require of the state? Nothing that is not clearly right—nothing in the least degree unreasonable—nothing that will not be early and amply repaid by the increased revenues returned to the source of the disbursements. We require in the southern, and in the western districts, agricultural schools, endowed as is the central one at Albany;* and diffusing equally to every section of the state, the advantages expected to be derived from that. The agriculturists of this state require, and it is to this point our efforts as farmers should be principally directed, an annual appropriation from the treasury, for the encouragement and support of county agricultural associations, which the experience of the past has proved to more rapidly advance the interests of agriculture than any other method yet devised; proof that is yearly accumulating from the experience of such societies as those of Berkshire and Worcester, in Massachusetts, and the long established ones of England and Scotland.

Discouraged by the failure of past applications in favor af agriculture, some may deem all exertion at the present time as premature, and hopeless. Such should not be the feeling among farmers, or their friends. Many of the causes which have had an unfavorable influence heretofore, have ceased to operate;—a sense of the value and importance of agriculture as a national interest, and the necessity of taking higher and more liberal ground in regard to it, has been gradually increasing among well informed and influential men; an opinion dictated in part by a more correct view of its relative magnitude, and in a greater degree by the more extensive diffusion of agricultural knowledge through journals devoted to the interests of the farmer.

To accomplish the desirable objects we have in view, nothing more is necessary for the purpose, than for farmers, and those devoted to agriculturel pursuits, to make their wishes known, and their voices heard, by the constitutional and legitimate method of petition, in our halls of legislation. Let some public spirited individual in every school district in the state, circulate a petition, having for its object legislative aid to agriculture, and these be early forwarded to that body.† Let this step be taken, and farmers, we are confident will no longer have reason to complain that they are unnoticed, and their interests disregarded. Our legislators have not so far forgotten their relative situation, as to need to be taught the truth, that they are the servants, and the people the masters; all they desire is the public will clearly expressed, and to that they will readily bow.

Agriculturists do not come before the legislature as mendicants, craving these appropriations as gifts, or as charity. They claim liberal portions of the treasury surplus as their own, the produce of the sweat of their brow; and which, if not required for the necessities of the state, should, in the shape of appropriations asked for, be at once returned to the rightful owner. A FARMER.

December, 1836.

STALL FEEDING.

Salem, Fauq'r co. Va. 26th Nov. 1836.

Dear Sir—I wish to inquire, through the Cultivator, what effect close confinement will have upon cattle designed for beef? Whether they will thrive when kept constantly confined? I shall build a barn for the purpose of stall feeding, and from the number designed to be fed, I shall not be able to give them exercise at all. They will be kept haltered in stalls from the commencement of winter until they can be turned to grass in the spring. I have no experience on this subject, and do not wish to proceed with a work so expensive as my barn will be, without being satisfied. I therefore respectfully request your opinion and that of your subscribers who have experience on the subject.

The house will be so constructed as to be well ventilated. The cattle will be kept clean, and supplied with pure water by means of pipes.

Very respectfully,

J. Buel, Esq. JNO. BAKER.

REPLY.

Mr. Baker may, with propriety and advantage, fatten his cattle in stables, in winter, and without giving them exercise, provided the stables are kept clean and well ventilated. We have had oxen two months at a time in stables, without intermission; and being fed upon ruta baga, they did not even obtain water; and yet they were healthy and fattened rapidly. Confinement facilitates the fattening process, where due regard is paid to pure air and cleanliness. But we caution Mr. Baker not to turn them to grass, till it has acquired growth and substance, lest they suffer by the change. But why not complete them for the shambles in the stable, and supply them there with the green food? Lawrence, as we shall show by an extract to be inserted in this or our next number, gives some cogent reasons in favor of stall feeding in *summer* as well as in winter. But in changing to green food, it will be well to do it by degrees, by mixing with the green, for a time, a portion of dry forage.—*Cond.*

SYSTEMATIC FARMING—UNDER-DRAINING—RUTA BAGA.

Judge Buel—Dear Sir,—When I had the pleasure of seeing you in Albany, you requested me to give you some account of my farming operations, and particularly in relation to underdraining, and the culture of the ruta baga. The short time I have been engaged in agricultural pursuits, and the little practical knowledge I have obtained, will necessarily render any communication from me at this time, comparatively of little interest—yet such as I can give, is at your service. My farm contains 400 acres of upland, and consists of several varieties of soil, but mostly a deep gravelly loam, upon a very tenacious clayey sub-soil. I came in possession of this farm, and first turned my attention to agriculture, in the spring of 1835.—None of the land had been half tilled, and some of it had been cropped so long without being manured, that nature had rebelled against the thankless task-master, and refused to produce any thing worth the husbandman's notice. I commenced a thorough and uniform system of improvement, by ditching, seeding, and manuring,—dispensing my favors with an unsparing hand, and without other regard to the expense, than noting the amount in my journal. The consequence has been, I have brought lands that did not produce enough to pay the expense of cultivation, to a state of beauty and fertility, and obtained a rich reward for my labor. And what is worthy the attention of those farmers, who say they cannot afford the expense of improving their lands, is this fact, that the increased product of a single year has more than paid the whole cost. As a specimen, I will give an account of a lot of 14 acres, which had been mowed successively for near 30 years, and the year before it came into my possession, cut but six tons. One third of the field was too wet to grow any thing but swamp grass, and its improvement was mainly brought about by under-draining.

---

* Our respectable correspondent is under a mistake. No appropriation has ever been made for an agricultural school at Albany:

† Any one may perform this duty. Take, for instance, the following

CAPTION:

To the Legislature of the State of New-York—The undersigned, inhabitants of the town of ——— respectfully petition.

That an appropriation of monies may be made from the state treasury, to encourage the establishment of County Agricultural Societies,—and to promote otherwise the diffusion of agricultural knowledge, and the advancement of improvements in husbandry, as an act of justive to your petitioners, and as a certain and direct means of increasing the wealth, the commerce and the revenues of the state.

My account with this lot for the years 1835-6, stands thus.

Dr. *Lot No.* 3—14 *acres.* *Cr.*

1835, April 20—100 rods under-drain *a* 4s......	$50 00	1835, July 20—30 tons pretty good hay *a* $10........	$300 00
6 days drawing stone *a*16s.	12 00		
300 loads manure *a*3s...	112 50		
½ ton plaster *a*$8.......	4 00		
Grass seed,............	10 00		
July 20—Getting in hay,	31 50		
Interest on land,........	49 00		
To balance,....	31 00		
	$300 00	Profit,........	31 00
1826, March 17—50 loads manure *a*3s......	18 75	1836, Aug. 2—35 tons superior hay *a* $12...	420 00
Grass seed, ...	2 50		
Aug. 2—Getting hay,...	37 50		
Interest on land, ...	49 00		
To balance,....	343 25		$451 00
	$451 00	Profit,........	343 25

Contrast this with the product of 1834.

Labor getting hay, say......................	$20 00
Interest on land,..........................	49 00
	$69 00
Credit by 6 tons inferior hay, say $8........	48 00
Actual loss,..............	$21 00

The same result has followed all my efforts to improve my fields, and I am fully persuaded, that no amount of labor or money, can be expended in the cultivation of the soil, that will not return four fold to the granary. or the store house. Yet these facts are lost upon the mass of farmers, already too wise to learn—who are contented with obtaining from their lands, one third the quantity they are capable of producing—apparently contented too, to deprive themselves of the comforts, luxuries, and rural embellishments, that make a home pleasant, and life a blessing; and continue to jog on in the path their fathers trod, turning neither to the right hand nor the left, though the bright goddess, plenty, with happiness and honor in her train, invites them at every step.

I would recommend under-draining to the serious attention of every farmer. Without it, the richest portion of my farm would be unproductive, and I have observed many fine fields, not only lying useless, but disfigured by cat-tails, rank weeds, &c., which a few dollars expended in judicious draining, would make the most profitable and ornamental part of the farm. In making drains, I have dug a ditch 3½ feet deep and two feet wide, and filled half full, with round stones, taking care to leave a number of places for the water to pass, or else placing large stones upon each side and laying a flat stone across, leaving but one passage for the water, and fill up with earth· Both kinds appear to answer well, but I prefer the first, as by dividing the water into several streams, there is less fear of undermining.

My crop of ruta bagas has not been so large as some I have seen noticed in the agricultural papers, yet it has been extremely profitable, and as food for stock, has far exceeded my expectations. I have made no positive experiments in feeding, to ascertain its relative value, but I have no doubt from what I have observed, that it is worth half as much as corn for fattening, and for milch cows and sheep, I know of no article of food that will compare with it. By the aid of the drill barrow and cultivator, the cost of raising, per acre is certainly not so much as corn, while the produce is about twenty times as much. I sowed the present year 2½ acres, the 20th June. The ground was laid in gentle ridges 2 feet apart, and the plants, when thinned out, stood 10 inches from each other in the rows. I think 1 foot by 2½ would have been better. At harvesting I measured off 12 square rods, and found the product to be 100 bushels, which would give 1,333⅓ bushels per acre. My average crop, however, fell considerably short of this, owing to early drought and the insects; yet this shows what may be raised, under favorable circumstances.

I cannot close this communication without urging upon every man who tills an acre of ground, the importance of taking an agricultural journal. It has been of incalculable benefit to me, and much of my success in farming is to be attributed to the knowledge I have obtained from the pages of the Cultivator.

Yours, with respect,

L. CHANDLER BALL.

Haosick Falls, Rensselaer County.

NEW JERSEY HUSBANDRY.

J. Buel, esq.—Dear Sir,—I subscribed for the Cultivator the second year of its publication, and obtained at the same time the first volume, consequently being still a subscriber—I have the whole series to the present time. Each successive number is received and read with interest, and I hope not without profit, and as long as it continues to maintain its present high character, I shall be a subscriber. I could earnestly desire that it might be widely circulated in this neighborhood, for I know no place in which it would be productive of more good, or in which an improved system of husbandry is more required, as a few details will suffice to show. I have resided here a little upwards of two years, and in that time have been much around the country. I have never seen manure applied to the ground in an unrotted state, and have seen but one farmer raise a crop of corn without tending it with the plough, both which customs I understand to be condemned by almost every contributor to your valuable periodical. I firmly believe that at least one third of the manure is lost by leaving it in heaps until it is rotted. I would prefer to haul it out in its crude state, spread it on corn or root ground, and plough it in, let it rot under the surface of the soil, and then plough it up and harrow it through the soil. One way in which I have seen unrotted manure applied, appeared to be very beneficial both in the crop and the ground; it is a practice pursued by at least two scientific farmers in Pennsylvania; I have not yet tried it, but intend so to do, as soon as possible. The manure is saved through the year in the barn yard, and kept well covered with straw, until immediately after harvest, when it is hauled out and spread on clover, for corn the ensuing spring. The theory is, that more of the good qualities of the manure sink into the ground than rise in the atmosphere; a rank growth of clover and weeds is produced, and is suffered to increase as long as possible in the spring, so as to get the corn planted in season. Two of the finest crops of corn I ever saw in Pennsylvania or this state, were raised in this way, and they were followed by excellent wheat, except the last season, the wheat being cut off by the fly.

Respecting the instrument called the Cultivator, I was quite amused to see the manner in which it was used here in one instance.—After corn was planted and up, two cultivators were turned in, and the field tilled both ways (the corn being planted in hills) this was repeated at a proper interval, and the field was in beautiful order, mellow and clean, not a weed to be seen; while in this condition two *ploughs* were put in, and the soil thrown to the corn both ways, and left so till the time to sow rye; that being sown, the *hills* were harrowed down with the triangular corn harrow; *mirabil dictu!* you are ready to exclaim, and well you may. By throwing earth to the corn the plant was necessitated to throw out fresh roots, and then dragging away the earth again, these roots were rendered not only useless but positively injurious. Hilling corn also increases the effect of drought upon it, both by turning off the rain and by increasing the depth that the rain has to penetrate to be beneficial.

This region of country is well calculated to be one of the most productive in the state; it abounds in marl, both the green sand and calcareous, or shell marl; the former is dug in many places within two feet of the surface, and the latter generally about six feet; the first is sold at the pit for 31¼ cents a load of 20 bushels, and the last at 50 cents per load. The application to the soil of both kinds is about the same in quantity, ranging from 5 to 25 loads per acre.—The greatest distance to which they have hauled from this neighborhood is about 12 miles. The general use of marl here is quite recent, and no doubt as it becomes better known, the use of it will be greatly extended; and the time will come when it will be as much an article of commerce as lime. This last spring I purchased a farm here of between 50 and 60 acres, entirely worn out; the soil of part of the farm is sand, and the rest gravel, no clay any where about it. The farm has once been productive, and I judge therefore that it can be made productive again. Up to this time I have spread marl (both kinds) over about one quarter of the farm, and if you think this communication worthy a place in the Cultivator, I will from time to time give you the result of my endeavors to improve my place.

Considering marl, lime, and plaster of Paris, or gypsum, as stimulants merely, due attention will be paid to clover and grass crops, and barn yard manure; the last being composed of all the refuse of the farm, applied in a crude or unrotted state.

I should be gratified to receive any suggestions that you can make in regard to the proper improvement of my farm. Or suggestions from any of your subscribers, would be gladly received, and acted upon, if consonant to my own views.

Yours, with much respect, E. H. VANUXEN.
Long Branch, N. J. Nov. 17th, 1836.

MAXWELL'S PATENT SELF-FEEDING CORN-SHELLER.

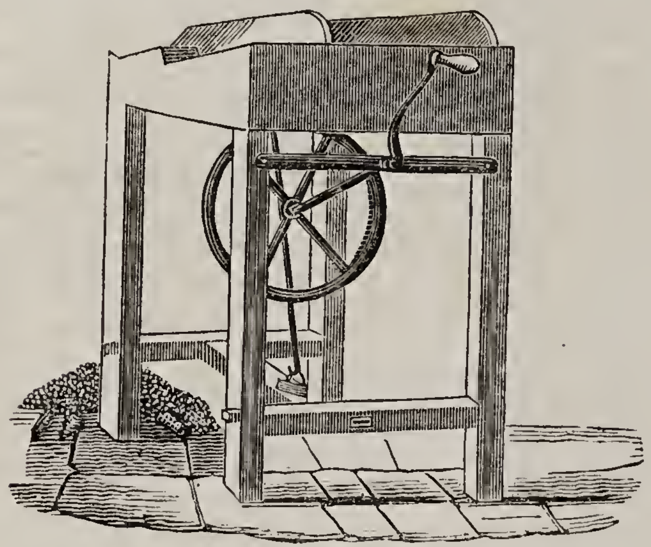


Fig. 45.

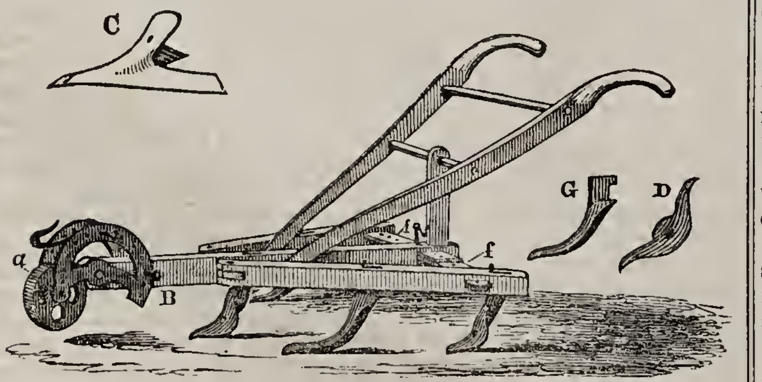
The *Hand Corn-Sheller*, of which the above is a view, consists of a frame two feet six inches square, and three feet six inches high, in the centre of the upper part of which, is a cast-iron plate with teeth in it, fixed on an inclined shaft, which gives to the plate an angle of about 15 degrees; over this, are the several apartments or avenues, with springs, for receiving the ears of corn. The ears resting on the plate, and being confined sidewise, acquire a rotary motion, that brings all their parts in contact with the sheller. The wheel in the above view, gives motion to the sheller, by means of a pinion one-fourth the diameter of the wheel, the plate making four revolutions to one of the hand.

The larger machine calculated for power is similar to the above, excepting in the shelling plate, which is of a *conical* form, with compartments all around for receiving the ears.

A power machine, recently sent to Washington for exhibition, contained twelve compartments for receiving ears, and with one horse power, is capable of grinding 500 bushels or more per day. The patent, or single rights, for sale by the inventor,

JAMES MAXWELL, 259 *Bowery*, *New-York*.

CULTIVATOR, OR HORSE HOE.—Fig. 46.



Above is a figure or drawing of *Bement's Cultivator, or Horse Hoe*. It has been much improved of late in manufacture as well as by the addition of new fashioned points or shares, which render it a very useful implement on the farm, and will be found particularly useful in the beet culture, which is now very justly engaging the attention of some of our enterprising agriculturists. With the aid of the Horse Hoe and Drill Barrow, the cultivation of the beet may be made as easy as that of corn or potatoes.

The Horse Hoe is useful for stirring the soil in the intervals between rowed crops, especially corn, potatoes, turnips, beets and beans.

Respecting the construction of Horse Hoes, it may be observed, that soils of different textures will require shares of different forms, according to the hardness or tenacity. The number of hoes in hard soils require to be diminished; in a hard clay soil, one of the triangular hoes in the centre, (C,) and four of the coulters in the wings, will often be all that can be made to enter the soil.

In using this implement, the operator should always consider whether he will produce more benefit by merely cutting over or rooting up the weeds, or by stirring the soil; because the hoe suited for the one purpose is by no means well adapted for the others. In the former case, flat or triangular shares are to be used; in the latter, coulters are much more efficient, as they will enter the soil and stir it to considerable depth, thus greatly benefitting the plants by admitting air, heat, dews, and rain, and by rendering it more permeable by the roots.

It should be introduced between the rows or drills as soon as the plants appear above ground, and the operation should be repeated at intervals till the crop is thoroughly cleaned.

The clevis on the point of the beam is so constructed, that the draught may be regulated so as to keep the wheel firm on the ground, thereby steadying the machine, and the depth is regulated by the wheel, and may be varied from two to six inches. The triangular hoes (C,) cut the bottom of the space between the drills completely, and should circumstances require, the hoes may be replaced by the coulters, which will open and pulverize the soil as well as rake out the weeds. The wings expand so that it may be regulated to any required width from 16 to 30 inches.

When the earth is required to be taken from the plants, as is the case with the ruta baga when quite small, the half shares (D,) are to be used, turning the mould boards to the centre, and the double ones substituted when the earth is to be replaced.

The coulters (G,) are useful for scarrifying old meadows that have become turf-bound. The double mould board shares are also useful for covering peas and oats instead of the plough or harrow.

They are for sale at the Agricultural Warehouse of Wm. Thorburn, 317 North Market-street, Albany. Price $15, including three triangular, three double mould board, three half mould board shares and five coulters, and carefully packed in a box for transportation.

AGRICULTURAL IMPLEMENTS.

Mr. Buel—Having used the following implements on my farm and tested their qualities, I take great pleasure in recommending them to my brother farmers, as worthy of their particular notice.

There is one thing, however, to be taken into consideration—all farms are not calculated for the use of all the implements enumerated. My soil is a sandy loam, and free from stumps and stones.

No. 1, *Concklin's Press Roller*—is decidedly the best and most efficient roller that I have ever seen. I used it in the spring, after turning under a green sward, which I intended for corn and Swedish turnips. It not only levelled and smoothed the surface, but perforated the sod full of small holes, which admitted the rain and air, thereby causing a more rapid decomposition; and in using my cultivator in dressing my Swedes, not a sod was disturbed or turned up during the season. On a clay soil, I should think it invaluable, for it pulverizes the earth much better than all the other implements commonly used for that purpose, put together.

On an old meadow which had become mossy and *hide-bound*, I used it for scarifying, previous to a top-dressing of old manure. Its operation was very effective and satisfactory.

Ploughed land, once rolled by this machine, is reduced to a finer state than by two or three rollings or harrowings with the ordinary implements used for that purpose. By removing the teeth, which are secured by a small wedge, a smooth roller is made of it at once.

I am informed by the patentee, that he has made some important improvements since he made the one I have.

It is figured and described in the first number and seventh page of the present volume of the New-York Farmer, and in the second number of the third volume of the Cultivator. They are manufactured by the patentee, Mr. John C. Conklin, Peekskill, N. Y.

No. 2, *Revolving Hay Rake.*—Of this implement, I have two kinds; one has been in use for some years, the other is a new one, described in vol. 2d, page 165, of the Cultivator. That the revolving hay rake is a labor-saving and useful machine, in smooth meadows, no one will attempt to deny who has ever used it. One man and horse will rake, upon an average, five acres per day with ease, and do the work well. They are getting into general use in all parts of the country, and will, no doubt, in a few years, supercede entirely the use of the common hand rake.

The advantage of the new over the old rake is, it is lighter and more simple in construction, easily repaired by any ordinary hand employed on the farm, and where there are small stumps and stones, the surface uneven, you can adapt it to the unevenness by lowering or raising the handles. I found it very useful where the meadow is laid off in small lands, by raking across them. I also found it very useful to follow the other rake, as it does the work much cleaner.

To those who are not already supplied with a horse rake, I would advise them to furnish themselves with one of Pudney's Revolving Horse Rakes forthwith. They are manufactured by Messrs. Pudney and Cowley, Stamford, Delaware county, N. Y.

No. 3, *The Expanding Cultivator*—I find very useful for many purposes, such as pulverizing and loosening the soil, instead of cross-ploughing, covering peas and oats, dressing corn, potatoes, Swedish turnips and all drill-crops. The one used was of my own construction. It is figured and described in the present number of this paper.

Some of these implements have been sent to North-Carolina, and used with great success on the cotton and corn plantations, doing the work of two ploughs, and the crops much more benefited by the operation.

They are on sale at the Agricultural Warehouse of Mr. Wm. Thorburn, No. 317 N. Market-street, Albany.

No. 4, *Hale's Horse Power*—I have had in operation since August, and consider it equal, if not superior to any I have seen in operation, where the power of one horse is required. It is a very easy and simple operating power, very portable and compact, easily removed, and not liable to get out of order. I have attached to it, a thresher, a saw for slitting boards for pannel fence, and another for sawing wood, a small mill for cracking oats, corn and other small grain for feeding stock, a vegetable cutter, a corn sheller, and I intend to attach a grind-stone. This power has been in use at the east for some time, and much approved of. I am well satisfied with the machine I have, and can recommend it with the fullest confidence. They are manufactured by Gilcrist & Co. Waterford, N. York.

No. 5, *Greene's Straw Cutter*—I have had in operation for two years, and consider it superior to any other machine that I have ever seen in operation—"and just what the farmers want"—the opinion of Mr. John Frey, of Palatine Bridge, to the contrary notwithstanding.

A very neat and substantial article is manufactured by the Messrs. Shuler's, of Lockport, New-York, and on sale at the Agricultural Warehouse of Mr. Wm. Thorburn, Albany.

No. 6, *The Corn Sheller*—which I have in use, is a very neat, strong and substantial article, being made entirely of iron. It is figured and described in the 7th No. of the present volume of the Cultivator, and on sale at the Agricultural Warehouse, No. 317 North Market-street, Albany.

No. 7, *Craig's Angled Harrow*—is the most perfect implement of the kind in use. It consists of two parts, joined together by iron rods, having hasps and hooks. Each part consists of four bars of wood, technically termed bulls, and connected together by an equal number of cross-bars, of smaller dimensions, morticed through them. It has forty teeth, and although light, is very substantial, and when in operation, covers a space of six feet. By a peculiar construction of gearing in front, it can be made to operate as occasion may require. It is very useful to harrow in seeds.

They are also for sale at the Agricultural Warehouse, No. 317 North Market street, Albany.

No. 8, *Hatch's Sowing Machine*—"though last, not least," is certainly a very useful article on a farm, and one I do not hesitate to say, the proprietor or hands on a farm will make no objection to, for it rids them of a very tedious operation. It sows plaster, lime, ashes, &c. in stormy or windy weather, and much more perfect and even than can possibly be done by hand. It can be guaged to sow any required number of bushels to the acre. I am also informed, that with a trifling alteration, it can be made to sow small grain and seeds of every description.

One of these machines was put in operation on my farm, with plaster, and I was so well satisfied with the operation that I purchased it on the spot.

It is very light and simple, and sows a space of ten feet at once, and will do the work of three or four men. I can recommend it to agriculturists with the fullest confidence.

Julius Hatch, of Great Bend, Susquehannah county, Penn. is the patentee and proprietor. CALEB N. BEMENT.

Three Hills Farm, Dec. 1836.

Salisbury Centre, Dec. 7th, 1836.

JUDGE BUEL—DEAR SIR,—As I am not a practical farmer, it may be, (and that very justly too) my pen has no legitimate place in your columns. Yet as I have perused that valuable publication about two year, I feel a pleasure in owning myself one of its votaries.

It is a prevalent opinion that the Cultivator is alone calculated for the farmer; and that for all other classes it is useless and nugatory. Experience has taught me otherwise, I cheerfully confess. From the perusal of this paper, and reflecting upon the subjects therein contained, I am convinced agriculture ought to rank as high in the catalogue of sciences as any of the professions; and that too, to understand it rightly, and practice it successfully, we need the aid of an education as much as in law, medicine or divinity. But how is the cultivator of the soil to be made to believe this doctrine—he has to account to no one for the mismanagement of his farm—he has followed the footsteps of his father and grandfather, and certainly thinks he is right. Now it is evident, if he had to account for his practice as strictly as the attorney or mechanic does to his employer, the evil would be remedied. But this is not the case. He has nothing (as he sees) of a duty to call his attention to the perusal of agricultural publications—to the study of philosophy or chemistry, &c., when all those studies are necessary in carrying on the business of the farm. Draining, rotation of crops, and finally all the operations upon the farm partake more or less of a scientific nature.—Then when shall we find the adequate impetus? I answer, let the legislature appropriate an adequate sum of the surplus revenue to agricultural purposes, in each county in the state, and then we shall see a speedy change in the face of nature. When the farmer can receive as a premium a specific sum upon the amount and quality of his crops, cattle, &c., he will not need to be urged to take a publication upon the subject—we shall not see the richest portions of his soil covered with wild grass and water. I have already been more prolix than I intended; but the subject is of too much importance to leave in a moment when flour is ten dollars per barrel, and cows at $2225.

If this is worth giving a place in your paper it is ad libitum, and if you reject it the author will deem your decision correct.

Yours with respect, E. H. SMITH.

EXTRACTS.

MARL—(*Concluded from page* 163.)

ANALYSIS OF MARL.

The value of marl, as a manure, must of course be referable to the nature of the different kinds employed. It is, indeed, evident that, being intended to correct or improve the soil, its constituent parts should be known, and their qualities explained before any use can be rationally made of it; and, therefore, the more accurately its properties are ascertained, the more confidently may the propriety of its application be determined. Farmers, indeed, cannot be expected to be sufficiently acquainted with chemistry to be able to analyze it, though the most calcareous sorts may be known by means of acids, as applied to lime; or, the common earthy kind, when put into water, will fall to pieces, allowing a considerable portion of sand to fall to the bottom of the vessel: by which simple tests, they might often derive considerable advantage. Its qualities are, however, more generally taken, by mere practical men, more upon trust derived from the experience of their neighbors than from any actual knowledge of its properties; but although, when thus guided, they cannot go far wrong, yet they may be misled by circumstances of slight apparent difference, and, in cases of new pits being opened, no certain estimate of its effect can be formed until a complete analysis has been made. This should, indeed, be done in all such instances; for it costs but a trifle, is easily performed, and without having recourse for the purpose to a regular scientific chemist, the object may be attained by application to any intelligent apothecary, by furnishing him with the following account of the modes of procedure:—

The ingredient of marls, on which their fitness for agricultural purposes depends, is the carbonate of lime. It is owing to the presence of this earth that marls effervesce on the addition of acids, which is one of their distinguishing characters: to ascertain which—

'Let the marl be put into a glass partly filled with water, which will expel a portion of air contained mechanically in the marl, and thus obviate one source of fallacy. When the marl is thoroughly penetrated by the water, add a little muriatic acid, or spirit of salt. If a discharge of air should ensue, the marly nature of the earth will be sufficiently established.'

Then, to find their composition—

'Pour a few ounces of diluted muriatic acid into a Florence flask, place them in a scale, and let them be balanced. Then reduce a few ounces of dried marl into powder, and let this powder be carefully and gradually thrown into the flask, until, after repeated additions, no further effervescence is perceived. Let the remainder of the powdered marl be weighed, by which the quantity projected will be known. Let the balance be then restored. The difference of weight between the quantity projected, and that requisite to restore the balance, will show the weight of the air lost during the effervescence, and will stand thus,—

'If the loss amount to thirteen *per cent* of the quantity of marl projected, or from thirteen to thirty-two *per cent*, the marl assayed is calcareous marl, or rich calcareous earth.

'Clayey marls, or those in which the argillaceous ingredient prevails, lose only eight to ten *per cent* of their weight by this treatment; and sandy marls about the same proportion. The presence of much argillaceous earth may be judged by drying the marl, after being washed with spirit of salt, when it will harden, and form a brick.'

ON POTATOES.—(*Concluded from page* 166.)

PLANTING.

We must further remark, that, whether planted whole or in sets, the roots should not be taken up, when intended for that purpose, before the haulm is withered; so as to allow the roots to reach a state of perfect maturity.

"The potato lying in the ground during the winter becomes perfectly matured, retains its juices, is preserved from fermentation, and germinates at the natural season; and we have found that the plant proceeding from it is luxuriant and healthy. Under our treatment the tuber is taken up immature; it has, therefore, a greater tendency to fermentation, from its juices being more crude. It is heaped up in large quantities, in close houses or pits, and these large heaps increase the tendency to fermentation. The time of planting is protracted beyond the natural period of germination, and the tubers become exhausted by germinating in the pits; and when at last committed to the ground, they are frequently planted in mould which has become dried up, and not unfrequently placed in manure which is also dry and withered, from improper separation or neglect; and are sometimes put into the ground so rough and ill prepared, that the air is freely admitted to the seed, to dry up any moisture that may remain. If seed be perfectly sound and uninjured, it may be able to surmount the obstacles which improper management at the time of planting opposes to its germination; but when injured and its powers of germination weakened, it may fail to overcome them," which views are strictly in accordance with the observations of the majority of the numerous communications which have been recently made on the subject to the Highland Society, in consequence of a medal offered by them for the best treatise on the subject.

In order also to ascertain the effect of planting the tubers and sets at different distances, a great number of experiments were made by the London Horticultural Society, with several varieties, upon pieces of ground of various measurement: thus—

1. A plot of ground was divided into squares of four feet, in the centre of each of which was planted a whole tuber, a single eye, a set containing three eyes, and the whole surface of a tuber pared off so as to leave the eyes safe, but to remove the centre—a practice which is not uncommon in Scotland and Ireland. The result of which proved to be, in thirteen cases out of sixteen, in favor of the single eyes as compared with tubers; in nine cases out of sixteen, in favor of single eyes as compared with sets containing three eyes; and, in ten cases out of sixteen, in favor of single eyes as compared with parings.

2. Eight different whole tubers were planted in a row eight feet long and two feet distance from each other, and the result showed, "that in those varieties which were of very strong growth, producing large plants, the first plan, at wide distances, was the best; but, when the varieties were weak or of a dwarfish kind, the lesser distances were the most productive. Thus it may be assumed that in every case the difference will be in proportion to the vigor or debility of the variety."

It being, however, thought desirable to repeat the comparison of whole tubers and sets, for the purpose of further illustrating the advantages and disadvantages of close and distant cropping, by trials with the varieties commonly in cultivation among those who supply the London markets, a quantity of early Champion potatoes was purchased by the society in the beginning of 1834, and a piece of ground, on which no potatoes had been previously grown, was selected for the purpose. No manure was employed, nor was the soil by any means in a fertile state for garden ground. The following account of the experiment was drawn up by Dr. Lindley, who, as one of the secretaries to the institution, attended to its management.

"The ground was divided into four equal parts. In one of these the rows of potatoes were as much as two and a half feet apart; in another, two feet; in a third, one foot and a half; and in a fourth, only six inches. Half of each division was planted with whole tubers, and half with sets cut to a single eye. The whole were committed to the ground on the 27th of February; both the tubers and sets being in every case six inches apart in the rows, and nine inches deep."

"On the 24th of April the points of the potatoes had reached the surface of the soil, and the next day about three inches of soil were drawn over them, for the purpose of protecting them from ground frosts, which in low and flat places, like the society's garden, are still prevalent at that time of the year. By the 2d of May the whole surface of the ground, in the division where the rows were only six inches apart, was a mass of entangled stems. By the 20th of the month, the stems in the division where the rows were one foot and a half apart had nearly covered the ground; and in a week after, those in the two feet division were in the same state; but the ground was not covered during the whole season, where the rows were two feet and a half apart.

"The shoots from the whole tubers were, in all cases, much stronger than those from the single eyes, but they began to be prostrated in the six-inch division, on the 29th of May, and the whole of them, in all the divisions, were in the same state by the 27th of June; while the stems from the single eyes continued erect till they began to turn yellow and wither, in the end of August. This will probably account for the superiority of sets over whole tubers: could the crop be protected from winds, and the stems of the tubers prevented from breaking, I have no doubt that tubers would yield the largest crop; but their very vigor makes them brittle, and once broken, they are no longer able to perform their functions perfectly.

"The greatest length to which the stems attained was two feet: the principal part of them attained that length, but many did not exceed one foot and a half; and those in the division where the rows were at that distance were the most uniform in their appearance. The important inferences to be drawn from this were afterwards shown by the result."

"On the 26th of September the whole crop was taken up, freed from mould, and weighed. Where the rows were only six inches apart, a number of new potatoes were partially decayed, and a very large proportion was too small to be fit for use. The most uniform size was obtained from the division where the rows were two feet apart. The result of the experiment was as follows:

Distances between rows.		Sets.	Weight of seed required per acre.	Estimated produce per acre, deducting the weight planted.		
ft.	in.		lbs.	tons.	cwts.	lbs.
2	6	Whole tubers.	6,497	18	8	4
		Single eyes.	1,470	15	19	82
2	0	Whole tubers.	7,426	16	8	46
		Single eyes.	1,794	24	0	87
1	6	Whole tubers.	11,764	21	4	72
		Single eycs.	2,055	22	16	102
0	6	Whole tubers.	32,065	16	17	91
		Single eyes.	5,008	16	17	110*

---

* The quantity of seed, and the estimated produce per acre, were calculated upon the quantities sown and gathered, which are stated in the original table.

"I think this result the most interesting that we have yet obtained, for it not only reduces to something like a demonstration the superiority of sets over tubers, but it shows that the crop will be greater where the distance between the rows is most in accordance with the average height of the potato stems; and that if we take the minimum height—which in this variety is one foot and a half—although the crop may be the most promising while growing, it will in reality be smaller than when the branches are less dense. Thus, the most uniform crop of stems in this experiment was in the division where the rows were one foot and a half apart; but the crop in that division was less by one ton three hundred weight ninety-seven pounds, than where the rows were two feet apart—this is, equal to the average height of the stems.

"For the sake of contrasting the produce thus obtained with the crop in the fields of those who cultivate potatoes for the market, I caused the weight in some neighboring fields to be ascertained by the same men who weighed the potatoes which were the subject of the foregoing experiment.

"A field of Yorkshire Shaw potatoes, belonging to Mrs. Medley of Acton, was found to yield at the rate of 14 tons 1 cwt. 26 lbs. per acre: about twenty-seven bushels of sets per acre being planted; which, allowing 68 lbs. as the weight of the bushel, will give a clear return of only 13 tons 4 cwt. 94 lbs. per acre nett. A crop of long kidney potatoes, in a field of Mr. Jessop, a tenant of the Duke of Devonshire, at Sutton Court, yielded a produce of 12 tons 4 cwt. 84 lbs., or only 11 tons 8 cwt. 40 lbs. nett.

"The rows were from twenty-two to twenty-four inches apart, and the sets at uncertain distances in the rows, varying from six to nine inches; but, in the last case, they were not planted more than five inches deep, including the subsequent earthing-up by the plough; and in the first, not more than eight inches. Moreover, Mrs. Medley's crop was not planted till the latter end of May; and Mr. Jessop's some time in the beginning of April.

"It is not difficult to account for the small amount of produce obtained in both these cases, as compared with what was yielded in the society's garden; and they are the more interesting, because, so far as distance between the rows went, that point was attended to. The society's potatoes were planted on the 27th of February, at the depth of nine inches, and were subsequently earthed up three inches more; so that, on the whole, they were buried a foot below the surface of the soil. Mr. Jessop's potatoes were only five inches deep, and were not planted till the beginning of April; consequently, he lost seven inches in depth: a most important fact, and about five weeks of the growing season. Mrs. Medley, on the other hand, did not lose more than four inches of soil, her potatoes having been buried eight inches deep; but she lost nearly three months of the growing season. It is, however, worthy of remark, that notwithstanding this great disadvantage, her crop exceeded that of Mr. Jessop by 1 ton 16 cwt. 54 lbs. nett; from which it may be concluded that the greater depth at which hers were buried, more than compensated for the loss of time in planting.

"Mr. Knight also planted in his garden some tubers of a variety of potato of very early habits, but possessing more vigor of growth than is usually seen in such varieties. The soil in which they were planted was in good condition, but not richer than the soils of gardens usually are, and the manure which it received consisted chiefly of decayed oak leaves. The tubers were planted nine inches in the soil, and the mould was afterwards raised three inches higher in ridges, to guard the young plants from frost. The produce was at the rate of 34 tons 9 cwt. per acre; and Mr. Knight is of opinion that still larger crops may be obtained."

From the foregoing facts it has been assumed by the society, "that, in order to acquire the greatest possible weight of potatoes per acre, it is necessary that large, heavy, sound tubers should be employed; and that the space allowed for the growth of each plant should be as nearly as possible such as it would naturally occupy if suffered to spread freely on all soils without interruption; that this space will vary according to the habits of particular varieties, and can only be determined by accurate experiments; and that too much, and too little room, are alike injurious to productiveness. Finally, that it is quite practicable to double the crops that are usually obtained."

In the previous part of these observations we cordially agree, and we think it very probable that crops may be increased by attention to the rules there laid down. We however doubt the possibility of their being doubled in the ordinary course of culture by any known improvement in its process; for the farmers in the neighborhood of large towns, which afford both high prices for the produce and abundant supplies of manure, and who are thus not wanting in the incentives to good cultivation, have not yet found means to raise their produce to any thing like that extent. The instances stated would indeed lead to that conclusion: but it must be recollected that they are *garden experiments;* and men who work upon a large scale justly look upon such trials with some degree of scepticism.

In addition to this it has been justly remarked, "that not only should the crops be thoroughly ripe before they are dug, but that, after having been allowed to dry and season on the surface of the land, they should be so stored as to be kept dry, cool, and free from untimely vegetation, whether kept in cellars, potato-houses, or pits. Expedients for effecting this will readily suggest themselves; but in the case of pits, it is recommended, when putting in the potatoes, to stick up narrow wicker-work funnels, at regular distances along the centre, thus leaving cavities or chimneys, from the bottom of the heaps, for the escape of steam."

It is perhaps not generally known, that the *meal made from potatoes,* if mixed with that of wheat, renders bread more light, palatable and digestible, than when manufactured from wheaten flour alone Most bakers, therefore, use a small portion of it, with a view to improve the quality; and it is for that purpose largely manufactured in the neighborhood of Paris, where the excellence of the bread is very remarkable. To obtain the powder, the potatoes should be washed clean, accurately peeled, grated with a coarse grater, and the pulp washed repeatedly through a hair sieve, after being each time allowed to settle; after which, when the water is found to pass quite pure, and without sediment, the pulp should be spread upon a cloth to dry very gradually, and then pounded or ground down into flour. When manufactured upon a large scale, the trouble of peeling may be avoided. The dried pulp may be ground and boulted in a common corn-mill.

It is thus obtained in different proportions, according to the goodness of the potato, from one-fourth to one-fifth of the weight of the root, and in nowise different from the starch made from grain. It indeed answers many domestic purposes, for it makes all sorts of pastry of a superior quality than when formed from wheat alone. It also possesses the advantage of retaining its qualities for a great number of years, without the least deterioration; and if the flour be not used, bread can be made with a mixture of potatoes, by choosing the most mealy, which, when boiled and peeled, are beaten and rolled smooth on a table with a rolling-pin, then kneaded with one-fourth, or one-third, of wheaten flour.

Young Men's Department.

OF THE NECESSITY OF UNDERSTANDING THE PRINCIPLES OF OUR OWN GOVERNMENT.

Let no American youth flatter himself, because he was born free, that he will, therefore, certainly live and die so; much less, that his children will escape oppression. In past ages, and in all countries, the great body of the people have been, and even now in most countries yet are, little better than slaves.

Subject to the absolute will of unfeeling masters, or oppressed by tyrannical and unequal laws; condemned to suffer punishment, without a hearing, groaning under excessive taxes, compelled to waste their lives in wars, undertaken, not for their benefit, but, to gratify the passions of their rulers; awed into submission by standing armies, maintained for the express purpose of keeping them in subjection, and supported by the sweat of their brows; wilfully kept in ignorance of their rights, and afraid even to utter a word of complaint against their oppressors—life itself, to them, can hardly be considered a blessing.

But, what has been the condition of all other nations, and still is the condition of most, it would be folly to deny, may yet be that of the people of these United States. Why not? Human nature is every where essentially the same. The rulers of other nations are tyrants, not because they are naturally worse than many other men; but because they have power to oppress. Men are naturally fond of dominion, and the possession of power increases the love of it, blunts the moral sense, and hardens the heart.

Let the American people once cease to guard their liberties, and they will soon find rulers willing enough to oppress them. Let them once bow their necks to the yoke, and there will not be wanting a tyrant to put it on. The framers of our constitutions well knew this. They foresaw that America, like all other countries, would produce ambitious and wicked men, who would aspire, and perhaps successfully, to places of power and trust; and therefore it was, that those wise and patriotic statesmen were so careful, as far as could be done by constitutional restraints, to put it out of the power of the public functionaries to deprive the people of their liberties.

But it is a truth, never to be forgotten, that our written constitutions are chiefly valuable, as land marks to guide the *people,* and as standards by which to measure, or rather as tests by which to try, the wisdom and fidelity of their rulers. For, after all, of themselves, they are but parchment and ink, useful only while the principles they contain are adhered to, and liable to be evaded or trampled under foot whenever the people cease to enforce them.

To point out all the various modes in which our free institutions are in dander of being destroyed, and to describe the successive steps by which a calamity so great, should it ever occur, may be expected to be brought about, would far exceed the limits of this chapter. But it is enough to know, that our course is beset with dangers, and that their only effectual antidote is to be found in the intelligence and virtue of the people at large.

Without intelligence, how can the people judge correctly of the conduct of their public servants? How are they to know when they are faithfully served, or when their interests are betrayed? Their rulers may be capable, honest and zealous in the discharge of their duties, and yet be discarded as unworthy of confidence? they may be incompetent, or unfaithful, and yet be retained in their places—to the discouragement of public virtue, and to the great detriment of the people.

Those who are in office, and the party leaders who support them, are naturally desirous of retaining the political power; and the ambitious men of the opposite party, are naturally eager to displace them, in order to get into power themselves. But, as it is only by the suffrages of the people, that either can hope to succeed, the object of both parties is, to obtain a majority of votes in their favor. With this view, the leaders of each party endeavor to convince the people that *they* are their only true friends, and that they alone, therefore, may be safely entrusted with power.

For this purpose, they establish printing presses, and circulate newspapers and handbills, among the people, and address them in public speeches. The means thus resorted to, would not only not be dangerous, but would be highly useful, provided those who use them, would publish nothing but the truth, urge none but fair and honest arguments, and abstain from attempts, by unfair practices, to prevent the people from listening to both sides.

But how widely different is their conduct! What is false is proclaimed as true; and what is true is declared to be false. What is asserted on the one side, whether true or false, is denied on the other. Where the facts are too notorious to be safely controverted, cunningly devised and deceptive arguments are resorted to, to bewilder and mislead the public mind. The same measure is applauded, as in the highest degree useful and praiseworthy—and condemned, as mischievous and wicked. The same individual is held up as a wise and devoted patriot—and denounced as little better than a traitor.

Attempts are made to shut out the truth by inducing the people, through prejudice, to shut their eyes and ears against it. Appeals are made to their passions, sometimes to their worst passions, which ought to be made only to their reason and judgment: and, what is worse than all, false and pernicious doctrines and principles are put forward, and industriously propogated, to advance the present personal interests of party leaders, regardless of the lasting and irreparable injury they are calculated to produce; and even at the hazard of corrupting public morals and subverting our free institutions.

This is no ideal picture. No one well acquainted with our political history, brief as it is, will deny that it affords but too many illustrations of the truth of all that is here said. The great instrument by which all this is done, and the only instrument by which it can be effectually done, is the PUBLIC PRESS. And yet, THE FREEDOM OF THE PRESS MUST BE MAINTAINED. If it propagates error, it also disseminates truth; and is, after all, the only means by which the people can be sufficiently enlightened to enable them to guard against still greater evils than those which arise from its abuse.

Most fortunately too, the abuse of the press, great as the evil is, may be rendered comparatively harmless, and even in a great measure corrected, by the people themselves. Let the whole American youth be well instructed; let them begin early, and continue, to read for information and to reflect upon what they read; let them take care thoroughly to understand their civil rights and obligations, so as to be able to fulfil the one and enforce the other—and the abuse of the press need no longer be dreaded.

When our youth shall be thus educated, and shall faithfully follow this counsel, there will be little danger of their being deluded and misled; and then, and then only, will they be qualified, upon attaining the age of manhood, to discharge, in a safe and becoming manner, the high duties of American citizens.

When this shall be the case, it will then be true in fact, as it is in theory, that the American people govern themselves. Then will there no longer be reason to fear the influence of universal suffrage, and then will this boasted right be of some value to its possessor. Then will it be, what our political fathers designed it should be, the safeguard of liberty.

But of what avail is this right to an unenlightened people? It is the right of freely choosing their own rulers; the right which every citizen has of voting for whom he pleases. But what is this right worth to a man incapable of judging for himself? A man who does not understand the principles involved in the election at which he is to vote: a man, in short, who has no better reason for prefering one candidate to another, than that he has been brought forward by the leaders of a political party to which he himself professes to belong, but whose success, for aught he knows, will endanger the prosperity and even the liberties of his country.

What is the nature of that fiery zeal which our elections call forth? does it spring from patriotism and an enlightened love of liberty—and has it the public good for its object? With the more enlightened an honest part of our citizens, such doubtless is its origin and its aim.

But with a vast majority, it is nothing but *party spirit*;—a spirit originating in selfish ambition, avarice and envy, and of which patriotism, if it mingles in it at all, forms the least active ingredient. This spirit is, therefore, the reverse of that which ought to animate the bosom of our countrymen when their rights and liberties are at stake. Instead of impelling them to take care of their true interests, it too often renders them blind to the public welfare, or heedless of its claims.

That party spirit will ever be entirely banished from our country, is not to be expected. There will always be men who prefer the honors and emoluments of office to the welfare of the public. But there is no reason in the nature of things why it should pervade, as it has hitherto done, the great body of our citizens. They have no personal ends to answer, and they are, moreover, at heart, patriotic. And yet we often see them driven almost to phrenzy by its influence. Why is this so? The answer is easy.

Not being sufficiently enlightened to be able clearly to discern for themselves the exact nature of the questions at issue between the conflicting parties, they are liable to be strongly excited by artful misrepresentations. Being little accustomed to reasoning cooly and impartially upon public affairs, their passions are, on this account, the more easily inflamed, and when aroused, exert a more unlimited sway. Thus it is, that many of our well meaning, but unenlightened citizens, are borne onward in their support of particular candidates for office, headlong, and heedless of every thing but the success of the party in whose behalf their passions happen to be enlisted. Thus it is that they are continually in danger of becoming, in effect, their own worst enemies.

The prevalence of high party spirit is therefore a great evil, not only because it disturbs the peace and harmony of society, and makes men worse, but because it is inconsistent with the duties of patriotism. There is but one means by which it can be checked and controlled; and that is, the diffusion of knowledge. When the great body of American citizens become as highly enlightened as they may, and certainly ought to be, when they understand and justly appreciate their distinguished privileges, they will not fail to defend and maintain them. No longer subject to being misled by others, but accustomed to follow the dictates of enligtended reason, they will scorn to be, what there is otherwise but too much danger of their becoming, the blind instruments of political aspirants.

Let every American who loves his country strive to hasten on this happy period. Let him ask himself whether it is fitting—whether it is consistent—whether it is not disgraceful, that ignorance and delusion should be suffered to endure among this youthful, but already great and powerful people; a nation pre eminently favored of heaven: blessed with every natural and political advantage—with no external danger to fear—with a vast and fertile country, and a salubrious climate—with a form of government admirably adapted to its genius and character—justly boasting itself the freest, and as yet, thanks to a kind providence, the happiest nation upon earth, and aspiring to the proud distinction of governing itself by wise and equal laws.

What say you then, my young countrymen! Will you qualify yourselves to discharge the high duties that await you? Will you take care to know your rights, and firmly and faithfully to maintain them? To learn your obligations and religiously to fulfil them? Do not, I beseech you, prove recreant to your trust. By all that you ought for yourselves to hold most dear: by the glorious memory of your ancestors: by the debt you owe to your common country: by the just claims of the friends of liberty in other lands, who look to America for encouragement and guidance in their struggles for freedom: In the name of the whole family of mankind—I conjure you—do not permit the noble inheritance, won by the heroic valor of your sires, to perish in your hands,—but take care that it shall descend, like the unclouded sun, bright and glorious to your posterity. Suffer not the fairest prospect the Almighty has ever yet vouchsafed to his creatures on the earth, to be shrouded in darkness; thus, not only impiously drawing down unspeakable calamities upon our own country, but quenching, perhaps forever, the flame of liberty, wherever it has been kindled by our example, throughout the world.—*Young Citizen's Manual.*

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at No. 71 State-street, at fifty cents per annum, in advance.

RECEIPTS.—We have received payments for the number of subscribers indicated below, between the 20th and 30th Nov. inclusive. Numbers under ten not noticed.

POST-OFFICES.			POST-OFFICES.			POST-OFFICES.		
Hartford,	Ct.	17	Clinton,	Ia.	14	Williamsport,	Ia.	10
Wilton,	Ct.	12	Covington,	Ia.	32	Monticello,	Ia.	10
Liberty,	Ia.	11	Attica N. and R.	Ia.	21	*GeorgetownX R.,	Md	22
Augusta,	Ga.	27	Crawfordville,	Ia.	38	Flemingsburgh,	Ky.	11
Nuttsville,	Va.	11	Frankfort,	Ia.	11	Pennington,	N.J.	22
*Eugene,	Ia.	24	Delphi,	Ia.	24	Toronto,	U.C.	15
Newport,	Ia.	13	Lafayette,	Ia.	38	Stonewall Mills,	Va.	11

* Including former payments.

PRICE CURRENT.

ARTICLES.	N. York. Dec. 19.	Boston. Dec 21.	Philadel'a. Dec. 19.	Baltimore. Dec. 20.
Beans white, bush........	1 25.. 1 50	1 75.. 2 25	..1 75	1 75
Beef, best. cwt...........	6 50.. 7 50	5 50.. 6 25	5 50..6 50	7 00..8 00
Pork, per cwt............	9 00..11 00	11 00..12 00	12 50	8 50..8 75
Butter, fresh, pound, ...	25.. 28	22.. 30	17.. 18	25.. 28
Cheese, pound, ...	8.. 10	8.. 12	10.. 11	
Flour, best, bbl......	9 75..10 00	10 00..11 00	10 75	10 0..13 0
GRAIN—Wheat, bushel, ..	1 90.. 2 00	1 98.. 2 00	2 00..2 15	1 40..1 85
Rye, do. ..	1 18.. 1 25	1 15.. 1 20	1 14..1 25	1 02..1 10
Oats, do. ..	50.. 62	60.. 65	40.. 51	50.. 53
Corn, do. ..	1 06.. 1 09	1 05.. 1 25	99..1 01	98..1 02
SEEDS—Red Clover, lb...	10.. 11	13.. 14	9.. 11	10
Timothy, bushel,.	2 00.. 2 25	3 00.. 3 12	2 50..3 25	3 00..3 58
WOOL—Saxony, fleece, lb.	75.. 80	70.. 75	68.. 75	55.. 60
Merino, lb...... .	55.. 68	60.. 70	60.. 62	48.. 55
1-4 and com. lb...	40.. 50	45.. 65	40.. 55	36.. 40
Sheep, ...	....	1 75.. 2 75		
Cows and Calves, ...	18 00..45 00	23 00..42 50	....	18 0..50 0

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A Monthly Publication, devoted to Agriculture—each No. 16 pages.

VOL. III. ALBANY, FEBRUARY, 1837.—(67 STATE-STREET.) No. 12.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.

J. BUEL, *Conductor.*

TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—GEORGE C. THORBURN and ALEXANDER SMITH, New-York. ALEX. WALSH, Lansingburgh, gratuitous agent. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

To improve the Soil and the Mind.

☞ The State Agricultural Convention meet on the 2d of Feb. at 4 P. M. at the Capitol.

☞ The New-York State Agricultural Society meet also on the 2d February. The annual address will be delivered by J. McNaughton, M. D.

☞ An election for thirty directors of the New-York State Agricultural School, will be held at the Capitol, in Albany, on the 15th day of February next, at 4 o'clock, P. M.

J. BUEL, L. F. ALLEN, H. YATES: J. DELAFIELD, } *Commissioners,* { J. P. BEEKMAN, J. CENTRE, W. CUNNINGHAM,

Subscriptions to the stock of the company will be received by the several Commissioners until the day of election.

January 3, 1837.

☞ We omit sending subscription papers where the Cultivator has a respectable circulation, from the belief that some gentleman will do us and the public the favor to collect and forward to us subscriber's names, and subscription monies, for the 4th volume. This No. completes our third volume.

SEVEN REASONS

WHY AGRICULTURE SHOULD RECEIVE THE PATRONAGE OF GOVERNMENT.

1. *Agriculture feeds all.* Were agriculture to be neglected, population would diminish, because the necessaries of life would be wanting. Did it not supply more than is necessary for its own wants, every other art would not only be at a stand, but every science, and every kind of mental improvement, would be neglected. Manufactures and commerce originally owed their existence to agriculture. Agriculture furnishes, in a great measure, raw materials and subsistence for the one, and commodities for barter and exchange for the other. In proportion as these raw materials and commodities are multiplied, by the intelligence and industry of the farmer, and the consequent improvement of the soil, in the same proportion are manufactures and commerce benefitted—not only in being furnished with more abundant supplies, but in the increased demand for their fabrics and merchandize. The more agriculture produces, the more she sells—the more she buys; and the business and comfort of society are mainly influenced and controlled by the results of her labors.

2. *Agriculture, directly or indirectly, pays the burthens of our taxes and our tolls,*—which support the government, and sustain our internal improvements; and the more abundant her means, the greater will be her contributions. The farmer who manages his business ignorantly and slothfully, and who produces from it only just enough for the subsistence of his family, pays no tolls on the transit of his produce, and but a small tax upon the nominal value of his lands.—Instruct his mind, and awaken him to industry, by the hope of distinction and reward, so that he triples the products of his labor, the value of his lands is increased in a corresponding ratio, his comforts are multiplied, his mind disenthralled, and two thirds of his products go to augment the business and tolls of our canals and roads. If such a change in the situation of one farm, would add one hundred dollars to the wealth, and one dollar to the tolls of the state, what an astonishing aggregate would be produced, both in capital and in revenue, by a similar improvement upon 250,000 farms, the assumed number in the state. The capital would be augmented two millions, and the revenue two hundred and fifty thousand dollars per annum.

3. *Agriculture is the principal source of our wealth.* It furnishes more productive labor, the legitimate source of wealth, than all the other employments in society combined. The more it is enlightened by science, the more abundant will be its products; the more elevated its character, the stronger the incitements to pursue it.—Whatever, therefore, tends to enlighten and increase its labors, must proportionably increase the wealth of the state, and the means for the successful prosecution of the other arts, and the sciences, now indispensable to their profitable management.

4. *Agriculturists are the guardians of our freedom.* They are the fountains of political power. If the fountains become impure, the stream will be defiled. If the agriculturist is slothful, and ignorant, and poor, he will be spiritless, dependent and servile. If he is enlightened, industrious and in prosperous circumstances, he will be independent in mind, jealous of his rights, and watchful for the public good. His welfare is identified with the welfare of the state.—He is virtually fixed to the soil; and has, therefore, a paramount interest, as well as a giant power, to defend it from the encroachments of foreign or domestic foes. If his country suffers he must suffer; if she prospers, he too may expect to prosper. Hence whatever tends to improve the intellectual condition of the farmer, and to elevate him above venal temptation, essentially contributes to the good order of society at large, and to the perpetuity of our country's freedom.

5. *Agriculture is the parent of physical and moral health to the state,*—it is the salt which preserves us from moral corruption. Not only are her labors useful in administering to the wants, and in dispensing the blessings of abundance to others, but she is constantly exercising a salutary influence upon the moral and physical health of the state, and in perpetuating the republican habits and good order of society. While rural labor is the great source of physical health and constitutional vigor to our population, it interposes the most formidable barrier to the demoralizing influence of luxury and vice.—We seldom hear of civil commotions, of crimes, or of hereditary disease, among those who are steadily engaged in the labors of agriculture. Men who are satisfied with the certain and abundant resources of their own labor and their own farms, are not willing to jeopardize their enjoyments, by promoting popular tumult, or tolerating crime. The more we promote the influence of the agriculturist, by developing the powers of his mind, and elevating his moral views, the more we shall promote the virtue and happiness of society.

6. *Legislative patronage* WILL *increase the products of agriculture,* and consequently advance the prosperity, promote the moral improvement, and elevate the character of the state. Look at the disparity, in the products and profits of labor, on the well managed and ill managed farm—or in the well cultivated and ill cultivated district. The one, we say, nets a profit of twelve or fourteen per cent per annum, on the nominal value of the land,—the other but two or three per cent—and abundant examples may be furnished of both extremes. The rural improvement of a country indicates, pretty correctly, besides, the intellectual and moral condition of its population. Now if by raising the standard of public instruction, by holding out rewards to successful competitors in improvement, and by establishing schools of practical and scientific agriculture, all of which come within the purview of legislative duties, we could render all our improved lands as productive as those of a like quality, which are well managed, our agricultural products would be quintupled. This we do not expect; but after making due allowance for all drawbacks, it must be apparent to every reflecting mind, that the advantages to the state, from a judicious application of a portion of public monies to promote agricultural improvement, would be manifestly great. We have seen, from a combination of local causes, and in a short period, the agriculture of old settled counties, doubled and trebled. General causes, operating upon the whole state, cannot fail of producing results alike favorable.

7. *Agriculture is entitled to special patronage, as a matter of* EQUAL

JUSTICE, *as well as from considerations of sound policy*—because she has had nothing special, while other classes have had much. She shares, in common with all, in the advantages of common schools, and public improvements, and she did receive, in 1817, a pittance, a *special* pittance, which she has refunded to the treasury, in the form of revenue, with compound interest. The state may be likened to a large family of boys. Five sixths of these have charge of the farm; others are taught trades and handicrafts; and to these two classes is confided the task of providing for the wants of the family. But, as a necessary appendage to a large family, one son is set apart as a doctor, another as a minister, and a third as a lawyer; and to qualify these the better for their respective duties, it is agreed that a portion of the family funds shall be applied to the establishment and maintenance of a school, for their exclusive benefit. Thus while the farmers and mechanics are getting their trades, by labor, in the field and in the shop, the doctor, the parson and the lawyer are getting their professions in the public school. By and by the working boys discover, that, owing to the rapid improvements of the age, school knowledge is as advantageous to the trades as it is to the professions; that there have been great improvements made abroad in their several arts of labor, and that without a knowledge of these improvements, and of the laws upon which they are based, they cannot successfully compete with their better instructed neighbors. Feeling themselves entitled to the same favor that has been shown to the doctor, the parson and the lawyer,—desirous of acquiring this useful knowledge in their business so necessary to the common interests of the family, and influenced by a laudable pride to become in fact, what they are in name, on a footing of equality with their already learned brethren,—the working boys now ask the family, to establish for them a school, adapted to their employments, now that the affairs of the family are prosperous. We cannot, say they, acquire the desired knowledge in the doctor's school, because it is not taught there; and because, were it taught, we cannot be spared from the farm and shop to go after it. We want a school in which we can practice our hands to useful labor, gain instruction in the principles of our business, and at the same time qualify ourselves for the higher duties of social and public life. Is there any thing unreasonable in this request? Or is there aught in it which a wise and prudent family would not grant with alacrity?

The state has expended about three millions of dollars towards qualifying the doctor, the divine, the lawyer, and the gentleman, to discharge their several duties in society, from which the farmer and mechanic can derive but partial, if any, direct advantage. The plainest principles of justice, which accede to all classes an equal participation in the favors of a free government, as well as a provident foresight, require alike some special provision for those who live by the sweat of the brow.

We affect to be above the people of the old continent in all our social and political privileges. To sustain this superiority, we should be above them, too, in our intellectual and moral improvements.—But we are not. We are superficial in too many things. We mistake the name, too often, for the substance. We are satisfied with sowing a few seeds at random, upon superficial tillage, leaving the after culture to chance; and the consequence is, weeds spring up with luxuriance, and often smother and destroy the plants of usefulness. We have but begun in cultivating the mind, the great lever to the arts, and the refiner of human enjoyments. We do not go far enough to ensure the harvest. In many portions of Europe, the mind is brought into early discipline, carefully prepared, and sown with those seeds which promise the best return to the individual and to the community. Take Prussia for an illustration of this remark. There the government provides seven years instruction for every child in the kingdom, at the public charge when the parent is unable to defray it. And what branches of instruction are there taught? Not merely those elementary studies, as reading, writing and the preliminary rules of arithmetic, which constitute the main studies in our common schools—but the sciences which instruct and dignify the useful arts—chemistry, geology, botany, &c.—geography, history, geometry, drawing and music; the mechanic arts and agriculture. Nor does the Prussian government stop here: It provides the schools with the means of teaching this knowledge efficiently. And the primary, or common schools, are not only provided with books and other ordinary matters, but with a collection of maps and geographical instruments, models of drawing, writing, music, &c., with instruments and collections necessary for studying natural history, and, according to the extent of the system of instruction, with the apparatus necessary for gymnastic exercises, and tools suited to teach the mechanic arts or manufactures in the school. She also attaches to every school in a village, or small town, a kitchen or orchard garden, which is made available for the instruction of the scholars; and to her normal schools, or schools for the education of teachers, a farm, for practical instructions in agriculture. Dr. Channing, in speaking of the Prussian system of instruction, says it is adapted to a monarchy—to bring the minds of subjects in quiet subjection to the will of the sovereign. So far as we have sketched its features, it seems as well adapted to a republic as a monarchy. If a king finds it for his interest thus to have all his subjects instructed in the higher, or at least most useful branches of knowledge, of how much greater importance is it, that those who are themselves to share in the sovereignty, to make and execute laws, should have their minds early imbued with useful knowledge. In giving these outlines of common school education in Prussia, we give, with trifling variation, the system in operation in Wurtemburgh, Bavaria, and other German states, and which is now being adopted in the French empire. The education of the great body of the people, with the view of implanting good habits, and fitting them, in school, for the various and important pursuits of life, is an improvement of modern times, and one of great moment in a moral and national point of view. It is particularly adapted to the welfare of a free people.

We want schools of science and practice, where the principles and the practice of the useful arts may be simultaneously taught, and the physical and intellectual powers of our youth fully developed in aid of each other. We want in our common schools a higher grade of studies, as a necessary foundation for increasing the knowledge and usefulness of our people. We want those stimulants to the development of mind, the germination of latent skill, and the practice of useful industry, which are the sure preludes of national prosperity and greatness. We want, particularly, a school of scientific and practical agriculture, as matter of experiment first; and should it prosper as we think it will, we shall hereafter want other like schools. We have seen the agriculture of England more than doubled in its products, under the vivifying influence of an efficient board of agriculture, patronized and sustained by the government. We have seen Scotland increasing, three and four fold, the productions of her soil, under the active and salutary influence of the very liberal premiums, which have annually, for fifty years, been distributed by her agricultural society. We see France, growing wise from the example of her neighbors, establishing national farms, and sustaining her agricultural societies by appropriations from her treasury; and we see the speedy and happy effects of this patronage, in the new impetus which has been given to the beet culture, and to improvement in her agriculture generally. We have seen our sister Massachusetts sustaining her agricultural societies by liberal annual appropriations from her treasury; and when the law making these appropriations had expired, we have seen her renewing it, thus affording the strongest evidence of its wisdom and utility.—We wish it was in our power to add, that New-York, great as she is in territory, in population, in resources and enterprise, had done something great, or generous, or just, to promote the improvement of her agriculture, the great business of her population. We hope the opportunity will be afforded for some one to do it hereafter.

The means which come legitimately within the purview of legislative duties, for promoting improvement in the productive arts of labor, are,—the dissemination, through our common schools, of the elementary principles of natural science, now become indispensable to the successful prosecution of the useful arts;—the patronizing of schools which shall simultaneously teach, practically, at least the great business of agriculture, and the sciences which serve to illustrate, enlighten, and render it more useful and profitable to the state;—to disseminate, through common school libraries, standard works upon husbandry and other common arts of labor; and to encourage the formation of county and local associations of farmers, with the view of calling into useful action, by pecuniary and honorary rewards, the latent energies of our rural population.

"The arts," says Sir John Herschell, "cannot be perfected, till their whole processes are laid open, and their language simplified and rendered universally intelligible. Art is the application of knowledge to a practical end. If the knowledge be merely accumulated experience, the art is *empirical;* but if it be experience reasoned upon and brought under general principles, it assumes a higher character, and becomes a *scientific art.* In the progress of mankind from barbarism to civilized life, the arts necessarily precede science. Application comes later; the arts continue slowly progressive, but their realm remains separated from that of science by a wide gulf, which can only be passed by a powerful spring. They form their own language, and their own conventions, which none but artists can understand. The whole tendency of empirical art is to bury itself in technicalities, and to place its pride in particular short cuts and mysteries known only to adepts; to surprise and astonish by results, but conceal processes. The character of science is the direct contrary. It delights to lay itself open to inquiry; and is not satisfied with its conclusions till it can make the road to them broad and beaten: and in its applications it preserves the same character; its whole aim being to strip away all technical mystery, to illuminate every dark recess, and to gain free access to all processes, with a view to improve them on rational principles."

The measures we have proposed are not untried experiments, or of doubtful tendency. They have been adopted by governments which we are taught to consider less friendly to, and less interested in, the general diffusion of knowledge, than our own, and the results have justified the experiment. The British government has caused agricultural surveys to be made of every county in the kingdom, and published these surveys, comprising fifty or sixty volumes, for the benefit of her agriculture. The French government has had collected and published, under the supervision of her minister of the interior, the agricultural works of her most enlightened citizens.—She is now, through her central agricultural society, giving a new and remarkable impetus to improvement in her agricultural labors. As an evidence of her zeal and liberality, and of her wisdom in calling forth useful competition, we are able to state, from documents in our possession, that she has offered to her farmers, for improvements in the beet culture, and in the domestic fabrication of sugar, alone, bounties to the amount of seven or eight thousand francs, or one thousand to fifteen hundred dollars. These premiums are to be awarded the coming spring. The effect of the competition which these bounties to skill and industry are calculated to excite, cannot fail to be greatly beneficial and abiding. She has in a few years increased the products of sugar from her soil to 80,000,000 pounds; while her arable and stock husbandry have been immensely benefitted by the extension of her beet culture; and she is likely successfully to compete, ere long, in our own grain markets.

The scramble for political power having for at least a time abated, and our means of improvement being now ample, the hope has been fondly, though perhaps vainly indulged, that considerations like those we have suggested, would press upon the notice of our statesmen, and induce them to adopt such efficient measures for improving the arts of productive labor, as should command the generous applause of the age, and live in the grateful recollections of posterity.

However apt we may be, in our fervor or frenzy to subserve the interests of *self* or *party*, to forget the obligation—we owe duties to our country—to our *whole* country—and to our God—for the performance of which we *must* be amenable—which are paramount to all others; and the faithful performance of which, while it imparts to life its purest enjoyments, affords the only safe hope of a happy immortality. The evil we do, benefits but for a time; the good we do, benefits for time and eternity.

ON THE REPEAL OF THE DUTY ON PROVISIONS.

The President has recommended a repeal of the duty on provisions coming from abroad, and several of our political journals have endorsed his recommendation. We dissent from their opinions, and will briefly state our reasons.

It is the conceded policy of all civilized nations to protect their home industry. Five sixths of our home industry is employed in agriculture, and hence this branch of our labor deserves the special protection of the government. A small duty upon foreign provisions is the only protection it receives, and this duty it is now proposed to take off. This principle of protecting home labor, which forms one of the great elements of national prosperity and independenc, led to the adoption of the tariff, which secures to our manufacturers a fair compensation for their labor, by subjecting foreign fabrics to an import duty. Without this protecting duty they could not have survived, and but for it we should now have been dependant upon the workshops of Europe, for many of the indispensable necessaries of life. What are our manufactures, either in magnitude or importance, compared to our agriculture? A drop in the bucket. And is it politic to jeopardise this great interest, or to paralyse its onward course in improvement, by bringing it down to a level with the servile labor of Europe? Is it just to protect the labor of the minor classes, and to leave unprotected that of the great agricultural class? Because from a bad season, and a series of other casualties, the farmer has this season realized only half of an ordinary crop, is he therefore to be deprived of a fair profit upon this moiety? Would the temporary high price of woollen goods justify a repeal of the duty upon foreign woollens? No. The manufacturer would not consent—the farmer would not consent, to see the great woollen business of our country prostrated by unrestricted foreign competition. And yet woollens, as well as provisions, are among the indispensable comforts of life—and it is unsafe to rely upon those with whom we may be invaded in war for either. We must be clothed as well as fed. It is well known that labor is much higher in the United States than in Europe—that the European laborer lives poor, and works low—that his wages would neither hire nor support a freeman here—and that consequently the price of farm produce is ordinarily much lower on the European continent than it is with us. France, Germany, Italy, and even Russia, can undersell us in our own markets, in the products of our own soil, under existing duties. The grain of these countries is constantly finding its way to our markets, with a fair profit to the importers. Take off the duty, and we shall be flooded with it; and the consequences to our agriculture cannot but be extremely disastrous. It is announced in a paper before us, that 10,000 bushels of wheat have just reached Georgetown, bought at Rotterdam, Holland, at $1.26 per bushel, thus affording an enormous profit to the importer, maugre the duties—Live and let live.

We cannot send our grain to Europe, when we have an excess, without paying heavy duties, which operate as a virtual prohibition. In Great Britain, these duties are mitigated when the average price of wheat is 80 *s.* the quarter, which is about equivalent to $2.50 per bushel. And why? Because *there* the interests of agriculture are deemed of primary importance, and the Englishman had rather pay dear for his bread than to see the agriculture of his country crippled by foreign rivalship. And yet, the agriculture of England employs but *one-third* of the population. In France agriculture gives employment to *two-thirds* of the population, and the same protection is thrown round it as we see in Great Britain. How much more forcibly do these considerations apply to the agriculture of the United States, where a very large proportion of the population subsist by its labors. While the farmer has quietly submitted to heavy protecting duties, to sustain other and minor branches of labor, is it not just, and even consistent with the best interests of the nation, that he should in return be protected in his labor? Every political and moral consideration unite in the propriety, not only of sustaining, but of improving and elevating the condition and the character of our yeomanry. To borrow the words of a Rev. Divine, "Human society may be compared to a stupendous column, agriculture forming the broad and noble base, manufactures the shaft, commerce the capital, while the learned professions, and the fine arts, constitute its rich and beautiful ornaments." We must guard the noble base, if we would preserve the unity and beauty of the structure; for if that fails, neither the shaft, the capital, nor the ornaments, can long escape ruin.

We cannot but indulge the hope, that the duty upon foreign provisions will be retained. The importations from abroad are very large, and are likely to increase, with the prospect of liberal profits, notwithstanding existing duties. They are so large as to allay all fears of famine; and before the repeal could have much effect upon prices, we shall be gathering the fruits of another harvest, which will probably be adequate to all our wants.

THE IMPROVEMENT OF THE LABORING CLASSES.

No man entertained a more ardent desire to improve the condition of the laboring classes of our population, or evinced a more liberal feeling towards the accomplishment of his wish, than the late John B. Yates. His zeal was manifested, during many of the last years of his life, in devising plans to improve their condition, and to enlarge their influence in society. His liberality is placed beyond doubt by the tenor of his will. He was among the first to perceive and to advocate, the advantages of associating physical with intellectual improvement—of combining theory and practice—science and art—labor and study—in the business of education—and of instructing the head and hands, simultaneously, in the duties of social life. And had he not been deterred, by unforeseen difficulties, from executing his plans,—or had his life been prolonged, it seems probable that he would have seen realized some of the brightest hopes of his benificence and patriotism. Mr. Yates was a warm advocate for an agricultural school, as constituting a corner stone—a sure foundation—for the intellectual and moral improvement of his countrymen. He was in a measure the father of the law of the last session for establishing a school of this kind; and he had made an appointment, with a highly esteemed friend whose zeal in the matter has been paralysed by sickness, to make a summer tour through the more populous counties, with the view of explaining the objects and public advantages of the association, and of soliciting subscriptions to its stock. Satisfied himself of its highly beneficial tendencies, he was anxious to unfold the plan of the school to others, from the noble desire of enabling others to share in the high feelings of pleasure which ever flow from the exercise of a patriotic munificence.

To make more generally known the elevated views which Mr. Yates held on the subject of this article, and to hold up his example for the imitation of others, we publish below a letter addressed by him to the conductor some twelve months ago, while laboring under indisposition, of which he was never after wholly free.

"*Albany, January* 16, 1835.

"My dear sir,—I regret exceedingly to be so situated as to put it wholly out of my power to attend the annual meeting of the state agricultural society in February. I had hoped to have been present, and lent my aid to the revival of your project of a state agricultural school. I trust it will not be abandoned. Having for many years thought the establishment of schools, combining literary and scientific pursuits with mechanical, agricultural and other useful active physical employment, absolutely necessary to the hope of preserving our social institutions, I have looked with intense interest upon every effort to engage public attention in their favor.

"The fate of the petition of the society over which you preside, presented to the Legislature last winter, is evidence only of an unwillingness to examine this subject, and the probable beneficial effects of such a plan of instruction, with that attention its great importance demands.

"We must adopt a different system of operations. Let us unite and form combinations of individuals throughout the state. Every farmer, every mechanic, every laboring man, in truth every citizen, whatever may be his station in society, will soon see his interest in promoting the success of the project. To your thoughts this subject is familiar; you have been zealously engaged in pressing its importance upon public attention so long and with such ability, that I feel almost guilty of arrogance while making suggestions to you, in a formal manner, for future action upon it. You will pardon me, however, for soliciting the earnest attention of the society to this subject again, at the meeting in February next. Every day of procrastination I consider a day of injury to the vital interests of the community. That in a democratic country, a project so essentially affecting the permanence of its political institutions, and so immediately connected with the interests of all classes, should have been so long neglected, is of itself sufficiently surprising; but when connected with the fact, that experiments have been made in less favored countries, which have been eminently successful; that in this state the limited experience we have had has fully proved their efficacy; that committees of the legislature have always reported strongly in favor of a public experiment; and that the legislature has ever had assurance against hazard of pecuniary loss in the experiment; if public patronage should be given to it,—our surprise is transformed to poignant regret. When we are also informed that nothing further has been done, that private attempts have been suffered to languish, and ultimately fail, for the want of public countenance merely, the apathy is so astonishing, that we are almost irresistibly impelled to inquire into the cause. I do not intend to pursue such examination, however. It is sufficient that we know many difficulties must be encountered by further reliance for aid upon the legislature, to which private effort, however feeble it may be, is not subjected. A combination of individuals may present a power which will ensure success.

"Comparison between beneficent acts for public good—(I will not say *benevolent*, for unnecessary inquiry into motives never can be correct)—is not always, and perhaps not often, happy; but this subject, in religious, moral and political importance, is superior to any other, and may, if properly directed, be the foundation of improvement in all. I will not assert, that there are no classes opposed to such diffusive improvement. Unfortunately for the public welfare, we have both seen and felt such opposition too evidently to doubt its existence, or its power to embarrass and defeat. It is not my province in this way to designate the source or character of the opposition particularly. Though some covertly, and others openly oppose, yet I believe even that arises from mistaken opinions with regard to their real interests.

"*I know of no class, order, profession or pursuit, in this country, whose permanent safety and prosperity are not interwoven with the most extensive possible diffusion of intellectual improvement, and the connexion of all useful employment in life with such improvement.*

"There is nothing in the act incorporating the society, to prevent the establishment of county societies in connexion with it. Indeed, I think such a measure would be in accordance with its intention. With this view I would suggest the appointment of a committee to visit as many of the counties as may be in their power, previous to the next annual meeting of the society, and in the organization and establishment of as many agricultural, mechanical and laboring men's associations as possible;—take measures to concert with those societies the formation and founding of schools of the above description. That such committee be authorized to procure subscriptions to found *one* school, in such place as a majority of the members at the next meeting of the society may think most eligible, for an experiment; and whenever they shall have procured subscriptions to the amount of twenty-five thousand dollars, they may request the president of the society to give notice for an extra meeting, if he should deem proper, previous to the next annual meeting.

"With great respect and esteem, I am your ob't serv't.

"J. B. YATES."

J. Buel, Esq. President of the
N. Y. State Agricultural Society.

BEET SUGAR.

We recently received from an esteemed friend at Paris, a package of French books and pamphlets, on agricultural subjects; and not understanding the French language, we handed them to some friends, with a request that they would translate whatever they might find in them of interest to the readers of the Cultivator. Dr. Spoor has just sent us a translation of one of the pamphlets, being a report made last summer to the Royal Central Agricultural Society of France, by a special committee, composed of the Baron Sylvestre, the Duc Decazes, and other distinguished members, on the culture of the beet, and the manufacture of beet sugar, embracing directions to individual farmers, and to small associations of farmers and others, for managing the whole of the manufacturing processes.—This is a very interesting document to the American reader, and particularly adapted to their present wants; as we have no doubt that the manufacture of beet sugar will become an important branch of our national industry, and that it will be profitably carried on as a rural and household business. We shall commence the publication of this report in our next number.

We copied into our December number, an article signed by W. W. Sleigh, calculated to dissuade our farmers from embarking in the manufacturing process. Mr. S. says, that "an establishment will not clear expense, unless it be calculated to manufacture at least from two to five hundred pounds a day." We doubt the correctness of this, when applied to a domestic or household concern, where we wish most to see the business prevail, though it may be true in reference to an establishment constituted for this purpose solely. There is a great difference in the economy of a business, whether it be carried on by hired labor, in an extensive establishment, or by the inmates of a family, at a season of leisure, without the charge of an expensive structure and costly utensils. Wherever manufactories may be established on a large scale, it will no doubt be for the mutual advantage of the farmer and manufacturer to exchange the beet for the sugar. But the beet will not bear to be transported far; and hence in districts where there may not be a large manufactory, we are anxious to provide for household manufacture.—Several instances are cited in the report before us, of rural establishments producing some 150 lbs. of sugar per day. When stripped of mystification, the process of making beet sugar has little in it more difficult than the process of making maple sugar. It consists in extracting the juice of the beet, of purifying it, and boiling it down to a proper consistence to granulate. All the care and particularity recommended in the making of beet sugar, might no doubt be applied advantageously to the making of maple sugar; though this is seldom done; and the consequence is, that our maple sugar does not possess half the value it might possess. The purification of the juice, and the reducing it to sugar, are managed on like principles, though the processes of purifying vary. The sap of the maple has only to be divested of its earthy impurities, which milk, eggs or blood serves ordinarily to effect. The juice of the beet contains coloring and other foreign matters, which it is necessary to get rid of; and this is done, and the liquor rendered limpid, by the application of lime and animal charcoal. These processes are particularly described in the report before us.

Now beets can be grown, gathered and washed, by the laborers on a farm; they can be reduced by them to pulp in a grater cider mill; and the juice can also be expressed by them in a common cider press. The purifying process is easily learned, and practiced by the inmates of the family, as are the processes of boiling down and sugaring off. The ordinary utensils of a family may suffice, though they are not to be preferred. A thermometer and areometer are useful in managing the processes with certainty and economy. They would be equally useful in the processes of making maple sugar, and the thermometer in the business of making butter and cheese. The cost of both will not exceed three dollars. One serves to determine temperature, the other specific gravity, and in five minutes the principles of either may be explained to a novice.—What then, we ask, is to hinder the farmer from raising the beet, and extracting from it, when his farm labors of the summer relax, or are completed, the sugar necessary for the consumption of his family, or for market, with as little expense, and as much certainty, as he produces it from his maple grove?

The labor of fabricating maple sugar consists in tapping the trees, collecting the sap, and boiling it down to sugar. This is all outdoor work, mostly performed in the woods, is fatigueing, and must be performed at an unpleasant season of the year, and ordinarily within a period of three or four weeks. The labor of making beet sugar, after the beets are prepared for rasping, consists in extracting the juice, and boiling it down to sugar. This may be all done under cover, and within a period of six months, though evidently the earlier it is done the better. The residuum of the beet sugar is valuable for cattle and sheep, and is nearly or quite sufficient to remunerate for the out-door labor, or the culture of the beet.

VEGETABLES FEED ON VEGETABLES.

The importance of every species of vegetable and animal matter, as a manure for the soil, may be made apparent to any farmer, by a few plain considerations.

Every kind of animal matter is derived originally from vegetables, and is convertible, by a natural process, again into vegetables. And every part of a vegetable is in like manner convertible into new plants.

The elementary matters of a species of vegetable are always the same; that is, a stool of wheat, or a stock of corn, grown this year, contains the same materials, and in about the same proportions, as they did last year. These materials, which constitute the wheat or the corn crop, are principally drawn from the soil; and consequently the fertility of the soil is diminished, in proportion to the number and amount of the crops which are carried off. However rich, therefore, a soil may be naturally, it must be evident, that every crop serves to diminish its fertility—that it becomes poorer and poorer every year until it is no longer worth cultivating—unless fertility is kept up by restoring to it the vegetable matters, or a large portion of them, which have been carried off. We have all seen this proved, in numerous instances, under the old system of farming. To prevent this decrease of fertility is one of the improvements of modern husbandry; and *it is prevented* by manuring and alternating crops. Under the old system the rich lands of the west will deteriorate till they are no better than those on the Atlantic border.—Under the system of manuring and alternating, the ordinary lands of Flanders have been made to maintain their natural fertility for hundreds of years, and those of China for thousands of years; and many of our worn out lands are now being in like manner renovated.

Again. That field of corn contains precisely what is necessary to constitute another field of corn. If it is all left to rot on the ground, and permitted to decompose and mingle again with the soil, it will make another like crop. But it is carried to the barn; the grain is consumed, and the stocks and shucks are eaten by the farm stock, or littered in the yard. If, after serving these purposes of the cultivator, the residue of the crop—the dung, the stalks, &c.—were carefully returned and blended with the soil, even then the deterioration of the field would be trifling. But this is seldom the case; these elements of fertility are suffered to waste, and if any, but a small portion of them are restored to the soil. The moment these stocks, or the cattle dung, begin to ferment, their decomposition, or chemical separation of their parts, commences—and this always takes place in the presence of heat, moisture and air—the gaseous matters, which they necessarily contained, and which are equally necessary to the coming crop, become disengaged and escape; the rains saturate and leach the mass, and carry off other matters which formed a part of the old, and which are also necessary to the new crop; and if fermentation is permitted to exhaust its powers on the mass, so as to reduce it to the form of muck, one half that constituted the old crop, and which the new crop will want, is irretrievably lost; but if the dung and stocks of the old crop, blended and saturated as they will be in the cattle yard, are restored to the soil, before fermentation and rain have dissipated their riches, the gases and liquids disengaged by fermentation will be absorbed by the soil, and held in reserve for the next crop. Hence the propriety of applying dung before it has rotted, or of applying the dung made in the winter to the spring crop; and hence the loss which ensues to the farmer from neglecting to convert to manure all the animal and vegetable refuse of his farm and household. Plants are cannibals; or in other words, they not only live upon plants, but they thrive best upon their own species. Nature is constantly changing dead into living vegetable matter, for the use of man, and it should be the business of the farmer to study her laws, and to co-operate in her beneficent designs.

Many of the objections to the use of long manure, in England, lose their force here. Our summers are much warmer than hers, and vegetable matters undergo a more speedy decomposition in our soil than in hers. The pertinent question is, does long manure decompose, when buried in the soil, in time to serve the crop? When put into the hill, or drill, we admit that it often does not; but when spread upon the whole surface, and properly buried, as we think it always should be, we believe it never fails to rot the first season, and in time for the corn crop. The late John Taylor, of Virginia, who was a scientific and extensively practical farmer, was in the habit of burying with the plough, in his corn fields, the spray and branches of forest trees and shrubs, as means of inducing fertility, and he found benefit in the practice. Great Britain, besides, cultivates no crop that is so fit a recipient for long manure as our Indian corn, which enters so largely into our system of husbandry as to absorb, with potatoes, all the long manure of spring,—and which is admirably fitted to convert this long manure into proper food for dry crops by the subsequent autumn. We repeat here what we have before remarked, that unfermented dung greatly accelerates the growth of straw and stalk—the stem, culm, or main body of an herbaceous plant—but that it is ill suited to the perfecting and maturing of the seed;—that unfermented dung developes its greatest power during the heats of summer, when the seeds of the several grains are forming; that hence it is improper to apply it to these crops;—but that when applied to corn, or other autumnal ripening crops, it generates a beneficial warmth in the soil, and by the gases evolved, causes a vigorous growth of stocks, at a season most important; that fermentation subsides before the formation of the seed, and that it then imparts to the crop the aliment best fitted to bring it to perfection. The doctrines of some British writers, who advocate the use of rotten dung, are not therefore applicable to our climate and culture.

CHINESE INDIGO AND MADDER.

We have received from Gen. Tallmadge some seeds of the plant, noticed in a former number, as also several other varieties of seed, brought from Italy and from Russia, for which we tender to the General our thanks. Among the seeds are those of the *Cadiz muskmelon*, indentical with the winter melon we lately spoke of, equal in flavor to our citron melon, but larger, and keeping late in winter. We say this from experience, as we are to day, January 3d, having one served to our dessert. This, with the other fruits of Spain and Portugal, are regularly supplied in the London market by steam-boats. Why, asks the General, do not our merchants supply New-York with all the ripe fruits of the tropics, by a like conveyance? We have some doubt if the Cadiz melon will attain to maturity in this latitude, but we have none that it would do well in

Virginia and south, and might be brought to northern markets before the setting in of winter. We shall endeavor to domesticate these strangers, though we fear most of them are too tender for our climate.

We subjoin an extract from the letter which accompanied these seeds, more particularly with the view of calling the public attention to the cultivation of the *madder* crop, as one likely to insure profit to the cultivator, and as of moment in a national point of view. It will be remembered that our imports of this valuable dye have exceeded two millions of dollars in a year—that the home demand will increase with the increase of our manufactures—and that our soil and climate have been proved to be congenial to its growth. The facts detailed in Gen. T's letter, in regard to this plant, will induce, we trust, new zeal in its culture among us.

"*New-York*, 25*th Dec*. 1836.

"To J. Buel, Esq.—Sir—Your known zeal in augmenting the productions of our country, and your efforts to make an additional blade sprout where it was before barren, gives assurance that a package of foreign seeds, could not be placed in better hands, than when confided to your care. I have considerable hopes from the *Asiatic Indigo*. I beg your personal care and judgment for this package. Mr. Clay, the American charge, at St. Petersburgh, translated what has appeared in the Journal of the American Institute, and he was under the full belief this indigo plant might be useful for his country.

"I had a package of *madder* seed, which I brought from Avignon, on the Rhone. It is but a few years since France purchased from Holland, &c. the madder used in her dyes. Her production of madder now supplies her own demands, and furnishes a new agricultural product for extensive exportation. France, I believe, supplies this country with madder for our dyes. Its growth is suited to our climate, and to the rich lands on our rivers. The attention of our farmers should be turned to this as a new and very profitable crop. A few years of peace in Europe, and the agricultural and mechanic labors of its subjects will surcharge our markets with their productions. It is a DUTY *to supply, from among ourselves, our own wants*. We have every variety of soil and climate.

"I am, Sir, very truly yours, &c.

"JAMES TALLMADGE."

CHINESE HUSBANDRY.

The almost illimitable extent to which the soil may be rendered tributary to the wants of man, is no where better illustrated than in China. There necessity is truly the mother of invention. Crowded with an immense population, mostly depending for subsistence upon the products of the soil, every expedient to induce or perpetuate fertility is resorted to. While we talk of worn-out farms, and exhausted lands, caused by the reckless management of the husbandman, in districts recently wrested from the fertilizing hand of nature, the soil of China has been made, by the art and industry of man, to yield an undiminished product for thousands of years. While we are accustomed to waste two-thirds, and often all, of the materials which Providence has provided to sustain the fertility of the soil—there every vestige of these matters—every animal and vegetable substance—is sedulously husbanded, and judiciously restored to the earth from whence it sprang, where it is speedily transformed again into food for the human family. Here we leave grounds to rest, and to regain fertility, as though they were endued with the properties of animals; there the soil has no rest—it is constantly under tillage, and is made to yield two or three crops in a season.

We find in the Farmer's Register, some notes on Chinese husbandry, extracted from the travels of a philosopher. We do not notice them under the expectation that the Chinese modes of husbandry are to be imitated among us, or that they are generally adapted to our condition; but as matters of curiosity, and as affording, withal, important suggestions to cultivators every where.

The secret art of the Chinese, says our author, of multiplying the grain and provisions necessary for the nourishment of their immense population, consists principally in manuring their fields judiciously, ploughing them to a considerable depth, sowing them in a proper season, turning to advantage every inch of ground which can produce the most inconsiderable crop, and by preferring to every species of culture that of grain, as by far the most important. They have no meadows, natural or artificial—insisting, that a field sown with grain, will yield as much for the nourishment of cattle, in the straw it grows, as it would have produced in hay. Fallows are unknown among them, as they are considered an abuse, destructive of plenty and population. All the grounds in the northern provinces, yield annually two crops, and in those towards the south, often five in two years, without one single fallow season, during the many thousands of years that they have been converted to the purposes of agriculture—and yet they fail not—because all that is taken from them, after it has subserved the purposes of man, is restored again to their bosom. They employ salt, lime, ashes, and all sorts of animal dung, but above all that which we throw into the rivers; they make great use of urine, which is carefully preserved in every house, and sold to advantage; and occasionally renovate fertility by trenching the ground with a spade, thus bringing to the surface a new soil, enriched with the juices of that which descends in its room. Every inch of ground is cultivated—even the most precipitous hills and mountains are cut into terraces, and sown with grain, and the waters of rivers and canals at their base, are raised from terrace to terrace, even to the summit, by means of a simple portable machine, which two men with ease transport and put in motion. And finally, agriculture is nurtured and dignified there, as it ought to be every where, as constituting the first and noblest pursuit of man, by the government of the empire. The Emperor himself, goes annually to the field, and turns the first vernal fallow.

EXPERIMENTS.

James M. Garnet, Esq., president of the agricultural society of Fredericksburgh, Va., gave, in a late address to that society, the results of some of his experiments in farming, a part of which we here insert, as matters of general interest.

1. He ploughed a part of his corn ground in the fall, and another part just before planting, (the character and condition of the soil not stated) the corn upon both parts was planted and treated alike—but no difference was perceived in the product.

2. He dressed one part of a field of corn with the cultivator, and another part with a plough, and finished both with a hand hoe. He perceived no difference in the crop, though some said the corn made with the cultivator was the best. The saving of labor, however, by the use of the cultivator, he thinks, was two to five and a half or six.

3. His skinless oats produced little more than the seed.

4. An experiment in drilling wheat proved nearly a total failure: he hardly got two for one.

Mr. Garnet thus notices a class of farmers, not confined to Virginia, whom he denominates "*Procrastinators*."

"A family, by the way, (says he) which, I fear, has more members in our dear state, than in any other that can be named. I speak *understandingly* (as congressmen say) on this subject, being at least cousin-german to some who rank very high among the brotherhood; although I must confess I do not pride myself much on the relationship. Among planters and farmers this family does quite as much mischief as the Hessian fly, the wheat-worm, the chinkbug, and all other flies, worms and bugs put together, that war upon their crops; and the man who could devise an effectual cure for their besetting sin, would justly merit the highest civic honors which could be conferred on him. Cure this, and we should no longer 'postpone to a more convenient season,' (as unbelievers do the consideration of religion) matters that imperatively require our immediate attention. We should never lose, as now frequently happens, a subordinate and subsidiary, but still important crop, by delaying to secure it at a critical time, merely because (as we say) *it would be working out of turn*. We should do every thing at the right season, but the particular order in which they were done, should always be varied according to the changes of the weather, and the condition of our arable lands. Thus to act, at all times, is the great art to secure success in all the branches of husbandry; and none who practise it constantly, will ever be under any necessity to abandon their native homes, their friends and their kindred, for strange lands, in pursuit of riches."

We make another extract from Mr. Garnet's address, descriptive of some of the ruling passions of the day, abounding in truth, and full of admonition.

"Thousands of these (northern farmers) are making fortunes—if not as rapidly as the cotton and sugar planters of the south, yet with all reasonable speed, and moreover, in peace and safety; while the latter are making them at the daily hazard of their lives—hazards inevitably produced by climate, or incidentally, but not the less certainly, by such universal laxity—nay, total inefficiency of legal restraints, as most unquestionably renders the three great blessings of free government, life, liberty and property, far less secure than in any of the old thirteen United States. I say not this from any invidious motive towards our younger sister states—no, God forbid: but simply to urge what I believe to be an undeniable fact, as an inducement to prefer an old to a newly settled country; in other words, to live in and die by old Virginia. Without doubt, there are thousands of as good men in the new states as in the old; but the truth, I think, cannot be denied, that there is far less power,—I will not say inclination—in the former, to restrain and punish the immoral portion of their population; and hence the perpetration of a much greater number of those outrages and crime that mar the peace and happiness of every community wherein they are committed. The appetite for making money in the new states would be quite as strong in the old, if constantly stimulated and provoked by the same powerful incentives; for man is much the same in his passions every where. But we have less of that demoralizing spirit of speculation, engendered by the inordinate lust for wealth, because there are much fewer subjects and opportunities to gratify it. Our government being much older, all the different trades, professions and callings, essential to a regular organized society, have long existed among us, in a numerical ratio, duly proportioned, or nearly so, to each other. The necessary consequence of this state of things is, that a systematic, uniform course of business is established for each, which, in a great measure, precludes speculation: labor, food, clothing, and all which constitutes the material for the internal trade and commerce of the country, possesses an interchangeable value approaching much nearer to a certainty, and therefore affording far less chance for those inordinate gains frequently made in new countries, and which form the sole temptation with most persons to seek them.—The new settlers there, with very few exceptions, soon become, to the citizens of the old countries, what the lottery brokers and dealers in that species of gambling are to the regular tradesmen and yeomanry of every country. The first cannot exist with small, or even moderate profits; but live in a constant state of feverish excitement, and with an omnivorous appetite for gain, whose cravings increase with every new supply of food, however enormous in quantity that may be. This appetite by frequent indulgence, soon becomes a disease, not less destructive, to both moral and physical health than drunkenness; and he who voluntarily, and with no better motive than to increase wealth, already sufficient, places himself in an atmosphere wherein he is daily and hourly exposed to contract it (as almost every settler in our new states does) can hardly expect to escape, nor does he merit exemption. The worst consequence of this all-absorbing passion is, that, in the universal scramble for dollars and cents which it inevitably produces, public spirit is paralyzed—our benevolent and social feelings are blunted, if not annihilated; our regard for the preservation of order, and the inviolability of law, is either lost or forgotten; and the moral condition of society grows worse and worse, until it becomes so intolerable as to end in civil commotion and bloodshed. Men know not themselves, while living under a government of laws, where justice is regularly administered, and crimes certainly punished. But let them once get beyond these salutary restraints, and many of them soon become as indifferent animals, as if they belonged to an entirely different race of beings. To what other causes, but such as I have enumerated, can we ascribe the notorious facts, that in some of our new states it has not unfrequently happened, that citizens, in broad day light, shoot and assassinate each other with entire impunity, in their own houses, and in the public streets of their towns and villages; that the civil magistrate, in attempting the execution of his duty, has been mobbed, and his life endangered, and that large bodies of men have, on some occasions, constituted themselves the judges, jurors and executioners, of several individuals, either by hanging them without any process of law whatever, or murdering them in a jail to which they had been legally committed? The end and practice of such men might be given in a few words, and thus catechitically stated.

"Who made you? I don't know. For what purpose were you made? To do what I please, if strong enough, and to make money. What is the use of making it? To make more. What are the means? Any which you believe you can practice successfully.—Are health, and life, and reputation worth risking for such purposes? Aye, verily, and much more, since the command of money enables you to command every thing else in this world, except the three trifles just mentioned."

Superior Cow.—Francis Bloodgood, Esq. late mayor of our city, has recently imported a cow from England, of remarkable milking properties. Two weeks ago she dropped a fine bull calf; and at the writing of this notice, the quantity of milk per day, drawn at morning, noon and night, and accurately measured in the presence of several persons, is ascertained to be thirty-three quarts and a pint.—Her feed has been one and a half bushel of brewer's grains per day, and as much hay as she would consume. This affords a fine illustration of the vast difference between good and ordinary farm stock.

HINTS ON FEEDING HORSES.

In feeding horses with grain, the proper quantity of the respective kinds is regulated by weight, for in this proportion are the different kinds considered nutritious. As for example, we give to a horse per day half a bushel of oats, the weight of which is 17 lbs., and if we wish to change to other grain, as barley, rye or Indian corn, the same weight will suffice; and as these grains are much heavier than oats, a proportionate less quantity, by measure, will suffice. Another rule, deemed important, is this, that whenever heavier grain is substituted for oats, a quantity of fine cut straw should be added, as a substitute for the husk of the oats. This induces a more perfect digestion of the grain.

The practice of giving dry grain to horses when pastured, or fed with green cut grass, is condemned; for the grain, thus given, is never perfectly digested, on account of the effect of the watery juices of the grass upon digestion. When dry grain and green feed are given, as much interval should be allowed between the dry and green food as circumstances will permit.

Von Thaer considers 8 lbs. of meadow hay equal in nourishment to 3 lbs. of oats; that hay improves by age, if well kept, and is most nutritious for horses when a year old; that the second growth is not equally nourishing; and that hay should not be unnecessarily exposed in making, the freshness of its scent being peculiarly gratifying to horses and cattle.

In Holland and Flanders, farm-horses are uniformly soiled during summer. A horse is supposed to consume from 84 to 100 lbs. of green food per day, with occasional grain. An acre of clover, at two cuttings, will give twelve tons of green food; and hence half an acre of clover, fed green, will suffice for a horse four months.

It is also a general practice in Flanders, and is extensively adopted in Great Britain, to convert the entire food into *manger-meat,* that is, to mix the cut straw and hay, the grain and the roots, or whatever is to constitute the provender for the day, and to feed altogether in the manger, in regular messes. The value of this mode of feeding is alleged to consist—

"1. In its requiring a more thorough mastication of the food than when it is given in the common way, thereby assisting digestion, and consequently promoting the nutrition of the animal; for, it is not only true that old horses lose much of the power of mastication, and that young and greedy cattle are apt to devour a considerable part of their corn entire, when it is given alone, which passing through them in the same state affords no kind of nourishment, but all animals are known to derive nourishment from their solid food, in a certain degree, in proportion to the care with which it is chewed.

"2. It is consumed in less time.

"3. By the mixture of the materials, some portions of which, as damaged hay, or straw, might be refused if given separately, an equal consumption of the whole is secured.

"4. By its admitting of being more readily weighed, or measured, than when given separately, it can be more accurately distributed to each horse; on which it may be observed, that more injury is often done to horses by allowing them an unlimited quantity of rack-meat [uncut hay in the rack,] than even by stinting them to a scanty allowance; for they will not only pass whole nights in eating, when rest would do them more service, but, by this extraordinary distention of the stomach, its powers are weakened, and their general health is injured.

"5. It prevents waste, and consequently goes farther."

Mr. Wiggins, whose daily business extends to the feeding of three hundred horses, estimates the saving by feeding entirely in this way, in the manger, at one sixth.

Rye is considerably employed as horse feed in America, particularly in Pennsylvania. It is generally coarsely ground, and mixed with cut straw or chaff, and moistened, by which the mass is incorporated.

Barley is extensively used in the south of Europe, in Asia Minor and in Persia, for feeding horses, for the reason, probably, that oats, being indigenous to colder climates, do not grow well in these countries. In the first of these countries it is uniformly fed with straw. Six bushels have been found, on trial, to be equal to eight bushels of oats. Barley contains 20 per cent more starch than oats, 5 per cent more saccharine matter, and 27 per cent less husk.

British writers have furnished us with estimates of the annual expense of keeping farm horses. One of these before us gives the aggregate expense of a two horse team and driver at about £90 ($400.) This includes the interest on the cost of the team and implements, (£270) and 10 per cent for repairs and deterioration.—We state this fact for the purpose of calling the readers attention to it. It imports, that allowing for the days when the team cannot labor, and assuming 260 working days in a year, that a team and driver should earn more than $1.50 a day, for 260 days in a year, to pay cost; and that all they fall short in doing this, is absolute loss to the owner. The keep, in Britain, is probably higher, however, than it is with us. Yet we are persuaded that few among us duly reflect upon the cost of maintaining a horse team in a plight requisite for doing good service. In Britain a team of good horses is considered adequate to the cultivation of 40 to 60 acres in tillage crops."

FARM ACCOUNTS.

Few points are more essential to success in any business than well kept accounts; and these are as essential in farming as in other operations. They are necessary in order to ascertain the relative profits of the several crops we cultivate, and the adaptation of our farms to particular branches of husbandry. Without these, although the amount of profit or loss may be *guessed* at the end of the year, by the balance in hand, yet no comparative judgment can be formed of the value of different modes of culture, or of different kinds of stock, and though we sometimes hit right, we often hit wrong. We intend to publish ere long, a somewhat detailed account of the systems pursued by Gen. Beatson and Mr. Gregg, upon two farms of stiff clay, in England. By keeping accurate accounts, and varying their systems as economy and good judgment dictated, Mr. Gregg in a few years, enhanced the profits of a 240 acre farm more than £600, or about $2500 per annum. When Gen. B. took the management of his farm, the expense per acre of cultivating grain, under the old system of summer fallowing, including manure, rent and taxes, was £16.4s. per annum. In a few years he reduced this expense, by economical changes in his system of culture, without diminution of crop, to about £5 per acre, or a third of the former expense.

The son of a farmer, arrived at years of discretion, might, with a little instruction, be enabled to keep a journal, which would tend very much to benefit him, as well as to improve the profits of the farm. A preliminary step is to make a schedule of the stock and implements upon the farm, and to designate the different enclosures, as A. B. C. &c., with their contents in acres. Let him note down daily, the expenditures in labor, money, &c., for each field, the increase or diminution of stock, the products of each field, and its value for market or home consumption. This journal may be posted into a ledger, where each field may be charged with the expenditures made upon it, and credited the value of the products. Deduct the lesser from the greater sum, and the balance is the profit or loss. Continue the account with this field through a course of crops, and from the general result, you will be able to judge of the crops and courses best adapted to the soil and the market, with a degree of certainty, and of the stock most profitable to be kept upon the farm.

NOTES FROM MY MEMORANDUM BOOK.

The turnip.—The *napus* (turnip) says Pliny, "requires a dry soil; it delights in cold, which makes it both sweeter and larger, while by heat it grows to leaves." Pliny wrote for Italy, whose climate resembles that of the southern states; and hence his remarks are particularly applicable there. The turnip thrives best, and is sweetest north of lat. 40. But even here it requires a dry soil, but one that is sandy and warm is preferable to a cold one.—The earlier common turnips are sown, after midsummer, the larger they grow; the later, if before the middle of August, the fairer, the sweeter, and the better for table. A large top indicates a small or defective bottom.

Gypsum.—Grisenwaithe, in his new theory of agriculture, states, that as in the principal grain crops which interest the agriculturist, there exists a particular saline substance, peculiar to each, so, if we turn our attention to clover and turnips, we shall find the same discrimination. Sanfoin, lucern and clover have long been known to contain a notable quantity of gypsum. Clovers and lucern have their growth very much accelerated by the application of gypsum, though many other plants are not at all benefitted by its action. A series of accurate experiments can only enable us to decide, with precision, the plants and the soils to which the application of gypsum is beneficial.

Snow, &c.—The overcharge of the atmosphere, with moisture in frosty weather, when falling from a great height, forms snow in large flakes; and from that height which in warmer weather produces drizzling rains, it becomes sleet; but when only floating over the surface, the watery particles, too small to be visible, collect upon the ground and leaves of vegetables, and form hoar frost.—*Dr. White in Georgical essays.*

Mosses, lichens and insects, which are prejudicial to fruit trees, may be destroyed by a simple solution of quick-lime, any time between the fall and opening of the leaf, applied with a watering pot or gardener's syringe. It does its office, and withal promotes the growth of the tree.—*T. Bishop, in Cal. Hort. Tr.*

Urine constitutes a rich manure. It may be used in winter on the currant and goosebery—in summer upon all vegetables, diluted with double its quantity of water.—*A Gorrie in do.*

Sap of plants.—Knight teaches, that the sap of plants *ascends* through the whitewood, and *descends* down the bark, depositing the matter of the new wood in its descent, but without becoming changed into it. That the matter absorbed from the soil and the air, is converted into the true sap or blood of the plant *wholly in the leaves,* from which it is discharged into the bark; and that such portions of it as are not expended in the generation of new wood and bark, join, during the spring and autumn, the ascending current in the wood, into which it passes by the medullary processes. As the autumn approaches, however, and the ascending sap is no longer expended in generating new leaves and blossoms, or young shoots, that fluid concentrates in a concrete state in the sap wood of the tree, as in the tuber of the potatoe, and the bulb of the tulip, and joints of the grasses, whence it is washed out in the spring, to form a new layer of bark and wood, to form leaves, and feed the blossoms and fruit.—*Cal. Hort. Soc. Mem. vol.* 11, *p.* 258.

To stop the bleeding of vines, Mr. Knight takes four parts of scraped cheese, and one of calcined oyster shells, or chalk burnt to lime. This is to be pressed into the pores of the wood. In this way the longest branch may be taken off at any season with safety.—*Ib.* 261.

Melons.—Mr. Knight says the green fleshed and Salonica, or white fleshed, are alone worth cultivating.—*Ib.* 163.

The grasses.—Their relative nutricious properties are indicated by the joints they contain—these abounding in concrete sap. Thus the fiorin, which contains many joints, is highly nutricious, and almost as much so if gathered in winter as if gathered in summer.

Transpiration of vegetables is greatest in spring and autumn, when the temperature is variable—(*Knight*) and is greater or less, according to the texture of the leaves, the soft and spongy displaying far the greatest powers, with regard to the elevation of the sap—the apple, peach, quince, walnut, &c. raising the mercury from 3 to 6 inches—the elm, oak, chesnut, &c. having glasy leaves, from one to two inches, and the evergreens scarcely affecting it.—*Davy's Ag. p.* 214.

In grasses, as well as in perennial trees, and shrubs, there is more soluble matter in winter than in summer, and its specific gravity is heavier than in summer, in consequence of the nutritive matter which nature lays up for the wants of the plant in spring.—*Davy,* 223.

FLAX CULTURE.

In a summer tour through West New-York, we saw large and numerous fields of flax in Seneca and Tompkins, *cultivated merely for the seed,* the fibre of the flax being not deemed worth getting out for market. We confess this struck us with astonishment, after having published, in our April No. of this crop producing, in Jefferson, more than a ton of dressed flax the acre, and knowing it to be worth, to the manufacturer, from 180 to $220 per ton, at the manufactory. Mr. J. O. Dey, of this city, has purchased several tons, for a manufacturer, of water rotted hemp, at 11 cents per lb. which is $220 per ton. We have been advised, that this indifference to the flax crop, or rather to the flax, arises from a want of knowledge of the process of water rotting, and to the tedious operation of dressing it by hand. We are disposed to give instructions upon the first head, and beg that some gentleman, acquainted with the best process of extracting the fibre from the shive, will assist us to do it on the other, in the hope of preventing the further waste of a material essential to our manufactures and our comfort.

The process of water rotting flax is simple, and lasts but 10 or 12 days. It consists in preparing a pool or pond, near a stream, or where water is at command, of sufficient capacity, into which the water may be introduced, and suffered to become warm. The flax is placed in this in small bundles, and kept beneath the surface by boards or plank and weights, until, by repeated examinations after the 7th day, it is found that the fibre will separate freely, when it is taken out, unbound and spread evenly upon the grass a few days to dry and bleach; and for coarse fabrics, it need only be suffered to dry.

It may be well to add, that flax does best on a light wheat soil, perfectly pulverized,—that it should be put in with a bush harrow, and then rolled. An Irish report upon the culture of flax, recommends an open, black, loomy soil, enriched by having lain long in pasture, as being superior to a clay, or any other soil; and that either on the first or second crop after pasture, they have always found it to do better than after potatoes or turnips.

The sheaves, being made small, are placed in the pit, crosswise upon each other, until the pile rises to within six inches of the surface, when it is strewed with rushes, straw or any coarse rubbish, and loaded with blocks or stone to keep them down or suspended. The pit should not exceed six feet in depth, as otherwise it will not acquire the requisite or uniform warmth; the water should be clear and soft, though stagnant during the rotting process—the steeping being designed to effect a partial rotting by means of fermentation. The pit should not be shaded, as the sun and air should freely act upon it. The water in which flax has been steeped should not be given to cattle; but it affords a good liquid manure. Mr. Billings says, in his Survey of Somersetshire, that he has found its effects, when applied to pasture lands by watering carts, to advance the land in value ten shillings per acre. He considered it superior to animal urine. It derives its fertilizing properties from the gummy matter separated from the flax in the steeping process.

The Flemish mode of steeping flax, as described in Radcliff's Flanders, is said to improve the quality of the lint greatly, to increase its whiteness, and to effect a saving of 10 per cent. in the product. It consists in placing the bundles in the steep vertically, instead of horizontally, as is the usual practice; in immersing the flax by means of transverse sticks, with that degree of weight annexed which shall not push it down to the bottom, but leave it the power to descend spontaneously towards the conclusion of the steepage; and of leaving at first a space of at least six inches between the bottom and the roots of the flax. The spontaneous descent of the flax is an indication of its being sufficiently steeped; and the strength and quality of the fibre are said to be much better preserved by this mode, in which the temperature of the atmosphere acts with more force upon the upper part of the plant, which containing the most gum, needs it most. Radcliffe gives the dimensions of a Flemish pool as two rods long, one rod wide, and six feet deep.—Clear and soft water is preferred.

Loudon speaks of a practice, of recent introduction in England, of breaking and dressing both hemp and flax without rotting; and he gives a drawing of Hill and Bundy's machines for performing the process, without describing them or their mode of operation; but he does not leave us to doubt of its being a great improvement, calculated to abridge greatly the labor and expense of the process. "The machines are portable," says he, "and may be worked in barns or any kind of out-houses; they are also well calculated for work-houses or charitable institutions; a great part of the work being so light that it may be done by children and infirm persons; and such is the construction and simplicity of the machines, that no previous instruction or practice is required. The woody part of the hemp or flax is removed by a very simple machine; and, by passing through a second machine equally simple, the flax may be brought to any degree of fineness, equal to the best used in France and the Netherlands, for the finest lace and cambrick. The original length of the fibre, as well as its strength, remain unimpaired; and the difference in the product is immense, being nearly two-thirds—one ton of flax being produced from four tons of stem. The expense of working each ton obtained by this method is only five pounds [about $22,] The glutinous matter may be removed by soap and water only, which will bring the flax to such perfect whiteness, that no further bleaching is necessary, even after the linen is woven; and the whole process of preparing flax may be completed in six days."—*Enc. of Ag. p.* 850.

Hill and Bundy's machines, according to this veritable author, would have given to the immense quantity of flax thrown away in the west, an intrinsic value of fifty dollars to every ton of stems—and it amounted, we think probable, to some hundreds of tons. It stands the manufacturer at least in hand, to inquire into the character of these machines, and to procure their introduction into the country.

Compost.—Mixing farm-yard dung, in a state of fermentation, with earth, in which there is much inert vegetable matter, as the banks of old ditches, or what is collected from the sides of lanes, &c. [or from marshes and swamps] will bring this inert dead matter, consisting of the roots of decayed grasses and other plants, into a state of putridity and solubility, and prepare it for nourishing the crops of plants it may be applied to, in the very manner it acts on peat.—Dung, however, mixed with earth, taken from rich arable fields which have been long manured and cultivated, can have no effect as manure to other land that the same dung and earth would not produce applied separately; because there is generally no inert matter in this description of earth to be rendered soluble.—*Loudon.* Mr. Loudon, in the last part of the sentence, must allude to *fermented* manure—as the earth, in a compost of *un*fermented manure, will become enriched by the gases, if not the liquids, given off by the fermenting mass. Hence one advantage of covering unfermented manure heaps with earth. The compost, to be sure, is easiest made in the soil, and in the field.

Jerusalem Artichoke.—We are induced to speak of this root, because we have seen it recommended for field culture in several journals, as a profitable article for cattle food. That it is a native of a warmer climate than ours, is evident from the fact, that its seeds never mature with us, and in some seasons the blossoms scarcely expand. But it is, nevertheless, readily propagated by the tubers, which remain in the soil uninjured by frost during our most intense winters. This root was once extensively cultivated in Europe, but its culture gave way to that of the potato. As it grows to a height of six to ten feet, the intervals between the plants require to be farther apart than is usual with the potato, though their product has been 500 bushels or more, to the acre. As compared with potatoes, they are watery, and inferior in their nutritive properties; and although they are greedily eaten by farm stock, they do not possess great fattening properties. The Germans use the stocks and leaves as forage. Though we do not think the culture of this plant an object where the potato or ruta baga thrive well, yet further south, where they do not do well, it might be advantageously introduced.

Morus Multicaulis.—Gideon B. Smith, of Baltimore, says he has many inquiries "how to preserve the morus multicaulis from injury from winter weather." Thus it would seem, that even in the mild climate of Maryland, this plant is liable to be injured by the frosts of winter. Mr. Smith very properly advises, that it be there planted on high dry ground, where the growth will be moderate, and the wood matured. We advise, that in this latitude, the plants be cut down to near the ground, in the Belgian mode, and the stumps covered in winter, at least till the roots have become strong, and the plants well established.

The Silk Business is rapidly progressing among us,—faster, we opine, than is justified by our experience and a due regard to prudence. We are in the height of a silk fever, and when the paroxism abates, although some will lament their credulity, and abandon the pursuit, yet the business will ultimately progress, and become a source of individual and national wealth. We see only the fair side of the picture—the disappointed do not publish their opinions. Like all other business, it requires intelligence, and prudence, and experience, to ensure success. But our object, when we began this article, was simply to state, that several successful attempts have been made in obtaining two crops in a season. To effect this, the eggs should be exposed to a proper temperature for hatching, as soon as the leaves of the mulberry are sufficiently developed to nourish the worms, say 10th to 15th of May. In forty or fifty days thereafter, the worms will have completed their labor, and the moth have laid its eggs. By exposing these, a new generation of worms will come forth in July.

An Improvement in Tanning.—The tanning process is likely to be greatly cheapened and expedited, by a recent improvement patented by Messrs. Bells, of Virginia. The improvement consists in freeing the hide, as a preliminary measure, from grease, and every useless substance, by mechanical pressure, by means of rollers passing over them when drawn from the vats. They then imbibe the tanning readily, and the whole process is completed in from two to eight weeks.

PRESERVATION OF FRUIT.

Our holiday rounds have afforded ample proof of the efficacy of cotton in preserving fruits, in their natural state, for a long time after their natural period of decay. We have seen and tasted black Hamburgh, sweet water and Isabella grapes, in this year 1837, as fresh and plump as they were when plucked from the vines in September or October, preserved in cotton, according to the directions given in the Cultivator last summer. Fruits thus preserved should be mature, and perfectly dry. and if grapes, the unripe and defective berries should be carefully plucked off. They are placed in layers, and alternated with clean cotton batting, in a stone jar or tight box, the mouth of the vessel covered so as to exclude the air, and the jar or box placed in a dry place, secure from frost, till the fruit is wanted for use.

The Magazine of Horticulture.—The first number of vol. 3 of this work has just come to hand, and deserves high commendation. It is devoted to our sister art, Horticulture. This number is wholly original, and is interesting and instructing to the practical gardener, as well as to the amateur pomologist and florist. Among other interesting subjects, of which it treats, we see commenced a description of one hundred and twenty-six varieties of the pear, by R. Manning, Esq. of Salem, worth itself, when completed, a year's subscription. This is a subject on which Mr. Manning is eminently qualified to give instruction, having all the varieties he describes in his own grounds, and having devoted years to the study of this fruit. The list will embrace most of the new foreign varieties.

The Magazine of Horticulture is a monthly 8vo of 40 pages, neatly printed, at three dollars a year—published by Hovey & Co., Boston.

The Zodiac—a neat literary monthly, 4to, published in our city, although somewhat prone to change, continues to shed its light, if not in the heavens, at least upon the earth; and Gen. Holstein, who is *now* the proprietor, will be happy to forward it to order.

Ploughing.—It has been ascertained, that a team, walking at the rate of one and a half and two miles an hour, will plough the following quantity of a medium soil, to the depth of five inches, in nine hours:—

	Inches.			A.	R.	P.
Breadth of furrow	8	at 1½	mile per hour,	1 „	0 „	0
	9	„	„	1 „	0 „	20
	8	at 2	„	1 „	1 „	10
	9	„	„	1 „	2 „	00

The difference in the quantity ploughed in these instances clearly demonstrates the value of action in horses; but it must at the same time be observed, that the distance travelled at the slow pace is only twelve, while at the quicker rate it is sixteen miles.

THE NATIVE MULBERRY.

Will not the indigenous mulberry of our country (*morus rubra,*) ultimately supersede foreign varieties, for the fabrication of silk,—in the northern sections of our country? We publish to-day a communication from Mr. Fay on this subject. The sample of silk which accompanied it is a beautiful specimen. The reputation of Italian sewing silk stands pre-eminently high, and this, we are told by Gen. Tallmadge, is neither produced from the white mulberry, nor the multicaulis, but from the *indigenous* mulberry of the country, the black mulberry (*m. nigra*). If we are permitted to reason from analogy, is there not good reason to believe, that every species of the mulberry will produce better silk, in the climate to which it is indigenous, than it will in a different one to which it may be transferred? We have both fabrics and raw silk from our native mulberry, and although they do not excel in softness and beauty, they appear equal to any in strength and durability. Neither the black nor the multicaulis, can withstand the severity of our northern winters; nor does the white often escape being seriously scathed.—We write for the latitude of 42°, and we speak from personal knowledge. The red abounds in our forests, is as hardy as our pines, and we presume may be as readily multiplied, and in the same way, as the exotic species are. The subject is at least worthy of particular investigation.

To Cure Chopped Hands, in winter, rub a little cream or vinegar upon them, after using soap. The chopping proceeds from the caustic effects of the alkali in the soap, and these neutralize it. The natural sweat performs this office in summer.

NOTICE OF CORRESPONDENTS.

Amos David, who writes to us from Tennessee, for a few seeds of the Morus multicaulis, is informed that this seed is not to be had in the American market, that we are advised of.

Plaster combined with manure.—We have received a communication from Austin Johnson, Rupert, Vt. showing the great efficacy of gypsum in bringing into operation the fertilizing properties of dung. A piece of meadow ground, upon a steep slope, and upon which grass would not grow, was selected for the site of hay stacks, and the hay was fed to stock upon the ground, whose droppings rendered it rich with dung, with the view of bringing in a turf. But this proved inefficacious, until he sowed plaster upon it, in two successive years, at the rate of a bushel to the acre, as upon the rest of the meadow. In consequence, he presumes, of sowing the plaster, the clover sprung up luxuriantly, and he cut a heavy burthen, at least two tons to the acre, when before he had not got enough to pay for the labor of cutting it; and it proved far the best part of the meadow. This indicates, in our opinion, that plaster is a specific food for clover—that clover will not grow well in soils which do not contain it, although they be made rich with dung—and that therefore it is a valuable application upon all dry soils, upon which clover does not seem to thrive naturally.

J. N. Smith, of Coffee Creek, Pa. requests us to publish directions for makiug and preserving cheese, for the benefit of himself and neighbors. We have the same request from others. We have had the promise of such an article from an esteemed friend in one of the best cheese districts of our country, and we trust this note will prompt him to redeem his promise.

QUERIES BY JUDGE GOLDSBOROUGH, CAMBRIDGE, MD.

"My farm," he says, "lays contiguous to an immense deposit of oyster shells, the deposit made by the Indians before the settlement of the province of Maryland, and the shells more or less in a state of minute separation, covered in part with vegetable black mould and sand. These beds are very numerous on the banks of the Choptank, a large river emptying into the Chesapeake bay. As the shells can be procured at a cent a bushel, would it not be advisable to pay the expense of hauling them one and a half miles? And would it be advisable to mix them with salt marsh and vegetable mould from the woods, forming compost beds?

"The most of the tillage land has been successively in wheat and corn, *without grasses,* and the soil generally of a whitish stiff clay, flat, but near enough to a creek of the above river to drain it by superficial drains or ditches. As this land has received no aid from the tenants, except from barn yard manure, I am apprehensive of the consequences of my inexperience in the use of lime, or other manures, which have not been heretofore tried on the farm."

ANSWERS.

As far as we can judge of the constituents of Judge Goldsborough's soil, from the preceding description, we are persuaded the decayed oyster shells, sand and vegetable mould, are the best materials to improve its texture, and to induce fertility. It seems to want, in its composition, more sand and carbonate of lime, which these materials afford; while the vegetable mould, and probably some animal matter, commingled with them, will prove a certain source of fertility. The cost and expense of hauling are trifling, compared with the promised advantages. The salt marsh will confer fertility, like all vetetable matters, if the soil, by its application, does not become too highly charged with saline matter, of which, however, we do not apprehend danger. The vegetable mould from the woods is an unfailing means of fertility, and requires no preparation. Thus the materials promise to be all beneficial; but the only portion of them likely to be improved by mixing in compost, is the salt marsh, and this, we are of opinion, will be readily converted into the food of plants if spread and ploughed in.

We doubt whether a flat surface of stiff clay can be sufficiently drained, for good husbandry, by superficial drains. The drains must be deep to secure healthy vegetation in a wet season—not only the surface, but the entire stratum penetrated by the roots of crops, should be exempt from an excess of moisture; and if open drains are constructed, they will cause a waste of ground, require annual and expensive repairs, and interfere seriously with the farming operations. We would recommend, therefore, that with the exception, at most, of a main conductor, the drains be all well constructed and covered, without regard to the difference in the outlay, as the latter, in the end, will be found far the cheapest. Good draining tile, we are informed, are now made in the neighborhood of Philadelphia, and sold at 10 to $15 the thousand feet, and the water communication with Maryland will afford easy facilities for transportation. The experiments which are proposed will enable the proprietor to modify his practice to suit circumstances; and indeed experience is the best teacher in these matters.

We shall bear in mind Judge G's promise, and look with interest for its fulfilment.

QUESTIONS BY MORRIS COPE, OF DOE RUN, PA.

Mr. Cope, after stating the bad prospect from the young wheat crop, from late sowing, to avoid the fly, and the early cold autumn, is desirous of trying spring wheat, as a substitute, and has asked for answers to the following queries:

1. Does spring wheat make merchantable flour—and is there any within thy knowledge superior to that spoken of by Mr. Hathaway?
2. Will it be likely to succeed in our latitude of about 40 degrees north?
3. Is it better adapted to a high situation, with a strong [rich?] light soil, or on low ground with a clay subsoil?
4. What time ought it to be sown, and how much to the acre?
5. How can seed be obtained, and at what price?

ANSWERS.

1. Spring wheat will make merchantable flour. Though not so white, or so abundant, the flour of spring wheat makes more nutritious bread, from the superior quantity of gluten which it contains, than the flour of winter wheat. We cannot speak of the relative value of different varieties from personal knowledge, as the grain worm will not permit us to grow wheat of any kind. The Florence wheat, spoken of by Mr. Hathaway, we however think a superior kind.
2. We have little doubt but spring wheat will succeed well in lat. 40. It is extensively cultivated in the south of Europe, a warmer climate than that of Doe Run; it is almost exclusively grown in Lower Canada, and is the principal wheat grown in the northern parts of New-York, in Vermont, &c. Its culture is extended as the country becomes more cleared, and exposed to the inclemency of winter.
3. It will grow on all wheat soils; but on clay, if rich, better than on light sand; and better on a moist soil than on a dry one.
4. Spring wheat should be sown upon well prepared ground, as early as the season will admit, and escape the severe frosts of spring; and should have a peck more of seed to the acre than would be required for autumn sowing.
5. We have had several inquiries for seed of the Florence wheat; and we have made inquiries for it at Rome, hitherto without success. The answer is, that there is grain enough, but that it is too foul to vend for seed—a poor compliment to the farmers of Rome. We however hope to see some in market in the spring. Other kinds, however, of spring wheat, may probably be obtained from G. C. Thorburn, seedsman, New-York, or of Joseph Beck & Co. seedsmen, Boston, before the navigation of the Hudson is open. The price will be from $2.50 to $3 per bushel.

QUERIES BY W. W. BOSTWICK—AND ANSWERS.

1. Do you find the Flemish pears all adapted to our climate? *Answer.*—They appear to be as hardy as our old varieties.
2. Do they answer, in the character of their fruit here, the high expectations formed of them. *Ans.*—But comparatively few of them have yet fruited sufficiently here to enable us to speak with confidence. Some have proved to be first quality—and some of only second or third quality. These new varieties are particularly esteemed as furnishing a succession of table fruit, for summer, autumn, winter and spring, which the old varieties did not afford.
3. Is the white thorn a good stock to engraft the pear on? *Ans.* It is not. The graft overgrows the stock, is too dwarfish and short lived. Our native thorn is as good as the white thorn, though neither serve so well for dwarfs as the quince, and that at best is short lived. The breaking varieties of the pear should not be put on either; the flesh of the butter pears (beurres) is rendered more solid by working them on quince stocks. Dwarf trees on the quince, generally bear earlier, and more abundantly, than when on pear stocks.
4. Does the apple, either the common or native crab, answer for a stock to engraft the pear on? *Ans.*—It does not answer.
5. Would a warm dry, gravelly soil, with a north western exposure, be a good soil and aspect for the pear? *Ans.*—The first would depend upon the quality of the gravel—it should be somewhat argillaceous, and we think calcareous, to suit the pear. We do not think the aspect of much moment at Hammondsport, otherwise than as it may influence the maturing of the fruit.
6. Have you most of the Flemish pears in your collection—and have they borne? *Ans.*—We have most of the best varieties.—We have been in the habit of receiving them annually—and last spring imported 5000 plants, of select varieties, new and old, from London. Trees seldom bear fruit in museums.

The cultivation of the pear, on soils adapted to its growth, and where the fruit can be sent to market, would, after a few years, be a most profitable business. Good fruit always commands a high price; the trees are long lived, and yield generally a heavy burthen. The vergaleu ordinarily sells at $2.50 to $3 per bushel, has been as high as $17 the bbl; and the winter and spring table fruit would probably sell as high, were it in market.

Bones.—David Foote, of Westchester, asks the price of grinding bones for manure, a description of the machine for grinding them, and what they are worth when ground. The only bone mills in the United States are in the neighborhood of New-York. We have not seen and cannot well describe them. We have had many loads crushed in a plaster mill, and paid for this one shilling a bushel.—The price of bone dust in Great Britain is 2s. 6d. and sometimes 3s. 6d. sterl. per bushel. At Long Island we believe they are somewhat cheaper. Mr. Foote recommends a slope in stable floors, of ¾ of an inch to the foot, inclining from the manger.

CATTLE AND SHEEP HUSBANDRY.

Opinions of eminent Breeders, Graziers, &c. collected and condensed for the Cultivator.

" *Fattening cattle* for beef, is well known to be performed, by grazing them at liberty in the pastures, and stall-feeding them at home. The latter is most commonly practised, in the winter season, but it is equally practicable and beneficial in summer: and the universal neglect of so certain a mean for the acquisition of so great and uncommon profit, must go to the account of our indolence, or our unaccountable prejudices. The success of fattening oxen by mowing the green meat (grass) of whatever kind, during the summer, has been often and fully ascertained. The meadows and pastures are thus preserved, and may be manured to infinitely greater purpose, by the saving made of dung and urine, and their superior condition and quality; and the herbage itself, secured from the tread of cattle, will go nearly twice as far, and (these important hints cannot be too often repeated,) the cattle may be kept secure, and quiet in the shade, free from every annoyance. Upon farms destitute of the great convenience of ox houses or yards, light sheds run up in temporary enclosures, near to the grass intended to be cut, will prove entirely sufficient. The cattle will fill themselves, lie down quietly to ruminate, and under the same circumstances, will improve much more quickly than if they had the liberty to graze. Nor does here lie any objection as in the case of milch cows. It will appear in experimental calculation, that the extra expense of cutting, carrying and attendance, is most amply repaid; in fact, that a very considerable additional profit is realized."—*Lawrence on Cattle.*

Feeding. All cattle should be maintained in a progressive state of improvement; for if they remain stationary, there is a loss of interest of money and of time; if they go backward, there is a positive loss of property, with the additional prospective disadvantage of injury to the animals, of delay, and of difficulty in regaining their former plight. Should this irregularity be repeated, it is probable, the far greater share of the expected profit of grazing, will be found, on a fair calculation, to be sunk. Duly apportioning the stock to the quantity of food, and regular feeding, are the life and soul of cattle keeping. Ofttimes you will see store pigs running about a man's yard, which are, alternately in high condition, and as thin as greyhounds. He ought to recollect, that whenever he suffers them to lose flesh, he has thrown away the greater part of that provision which was the cause of their improvement.

The golden rule respecting *quantity*, is, *as much as a beast can eat with a vigorous appetite;* all beyond that important criterion, is so much lost to the proprietor, and not improbably an impediment to thrift in the animal. Here is the foundation of a good argument in favor of the removal of that which the animal leaves, that it may not remain to be contaminated by his breath, to disgust him, and to pall his appetite.—*Ib.*

"Cattle well summered are half wintered." So says Lisle. And Lawrence adds, "cattle well wintered are half summered."

Cattle left out late in the fall, should be foddered early in the morning, and not be compelled to eat grass with the hoar frost upon it, which indeed they dislike.—*Lisle.*—This caution is of particular importance in the north, where vast numbers of cattle and sheep perish annually from disorders occasioned by receiving congealed water into their stomachs.—*Lawrence.*

When a beast is fat, he will show himself so to the eye, by a roll of fat as big as one's fist, which, when he walks, moves itself forward, before his shoulder; such a roll of fat may likewise be seen in his flanks.—*Virgil.*

Cow to be dried within two months of her calving, as, to milk her longer, most certainly impoverishes both cow and calf, to a far greater amount than the value of the milk. All young animals, well kept, are the better for it ever after; heifers come to the pail earlier for it, and bullocks fatten earlier.—*Lisle.*

The first calf of an heifer best for rearing; the reason alleged, that the cow could not be reduced by milk during gestation. Late fallen calves, in May and June, never so hardy when grown up, or bear the winters so well, as those dropped in March; the chief reason of this is, because late fallen calves must be weaned late, and as they always pitch, or fall away a little on weaning, the approach of winter prevents their recovery; and nothing afterwards makes amends.—*Lisle.*

Fir branches. "I was so pinched last spring for provender to cattle, that I had not a stone of straw or hay from the middle of March; nothing but whins and oats for horses, and fir tops (that is, tender shoots of firs) for cattle; and I had 430 horned cattle, and about 120 horses, small and great, of which I lost but four or five; but there were numbers of cattle that died in this country for want. Some lost one half, and some almost the whole. As many branches were lopped off as would suffice for a day. Lord Townsend applied plantation thinnings (boughs and leaves of trees) to like purpose, and with equal success. Some of the sheep which *scoured*, were recovered by the use of the trimmings and the bark. Sheep, cows and bullocks eat the leaves and small twigs. They prefer the trees in the following order,—ash, Scotch fir, oak."—*Annals of Ag. v. v.* There is no doubt but cattle will subsist upon browse, and that evergreens are particularly congenial to the wants of sheep in the winter.

Stall feeding cows in summer. John Collet, in a communication to the British Board of Agriculture, states that he stall fed 30 cows, 1 bull, 4 calves and 5 horses, in the summer, from 15 acres of clover, sown the preceding year. Two men and two maids sufficed to tend them. The nett produce of the season, in butter, from June to October, was £19 10s. each cow (nearly 90 dollars.)

Tables of experiments made at the Earl of Chesterfield's Dairy.

TABLE I.

Shewing the produce of three milkings from one cow of each of the stated breeds and crosses.

BREEDS & CROSSES.	Produce of three milkings.						
	Milk.		Cream.		Butter	Cheese Curd.	
	qt	pt	qts.	pt.	ounces	lbs.	ounces.
Holderness,	29	..	2	0½	38½	8	5
Long Horn,	19	½	2	..	26	7	3½
Devonshire,	16	1	1	1	28	5	9½
Alderney,	19	0½	1	1	25	8	8½
Devon & Holderness cross	25	..	2	0½	32	8	3½
Devon and Longhorn "	28	..	2	1	29	9	..
Devon and Alderney "	12	..	1	0½	21½	5	..

TABLE II.

Shewing the produce of five quarts of milk, taken from the milkings of five different cows of each of the stated breeds and crosses.

BREEDS OF COWS.	Butter.	Pressed Cheese Curd.	
	Ounces.	lbs.	oz.
Holderness,	7	2	4
Longhorn,	6¼	2	6
Devonshire,	8¼	2	9½
Alderney,	9½	2	4
Devon and Holderness cross,	8¼	2	10
Devon and Longhorn cross,	8	2	9½
Devon and Alderney cross,	9	2	4

The breeds and crosses placed in rotation, according to the quantity of food they eat:—1. Holderness; 2. Devon and Holderness cross; 3. Long horns; 4. Devon and Long horns; 5. Devonshire; 6. Devon and Alderney cross; 7. Alderney.

The Devon and Holderness crossed, produce a valuable stock, (very much resembling the Herefordshire cattle) of a large size, hardy, kind feeders, and the meat of an excellent quality.

The Devon and Long horn cross are not so large as the former, but very hardy, are kind feeders, and the meat of a good quality.

The Devon and Alderney crossed, produces a very valuable stock, of a moderate size, much improved in symmetry, hardy, have a great propensity to fatten at an early age, even upon indifferent food, and the meat very rich.

Lord Somerville remarks on the above experiments,—"By this it appears, that the Devon and Alderney cross maintain the high reputation, for butter and good feeding, which it has long had. The Devon breed itself stands next in rank."—*Lawrence on Cattle.*

Warranty. Salisbury assizes, July 1806. S. v. D. 84 ewes were sold, warranted sound. Proved by the plaintiff, that defendant had water-meadow, which was accustomed to rot sheep, and that his own grounds were sound. Plaintiff recovered £67 11s. 8d. loss sustained by the sheep.—*Ib.*

Cattle medicine. Hoven cattle perforated with the trochar and canula, in use for the dropsy, introduced by Mr. Mason. Gunpowder in gin, or milk, successfully given in the case, also æther. One ounce of gunpowder to a pint of milk. An egg-shell full of tar is an old remedy—*Ib.*

Heifers are superior to oxen in early ripening, i. e. in becoming fit for the butcher. Spayed heifers are known to fatten more speedily than are oxen of the same breed, but do not attain an equal weight; they are also considered as of so much finer quality that, although four or five stone lighter than steers, they have fetched a higher price. On the continent they are often spayed, and afterwards worked as oxen, in which case they are said to be peculiarly apt to fatten, and to produce beef of a very superior quality.—*Von Thaer, &c.*

CORRESPONDENCE.

STABLING CATTLE.

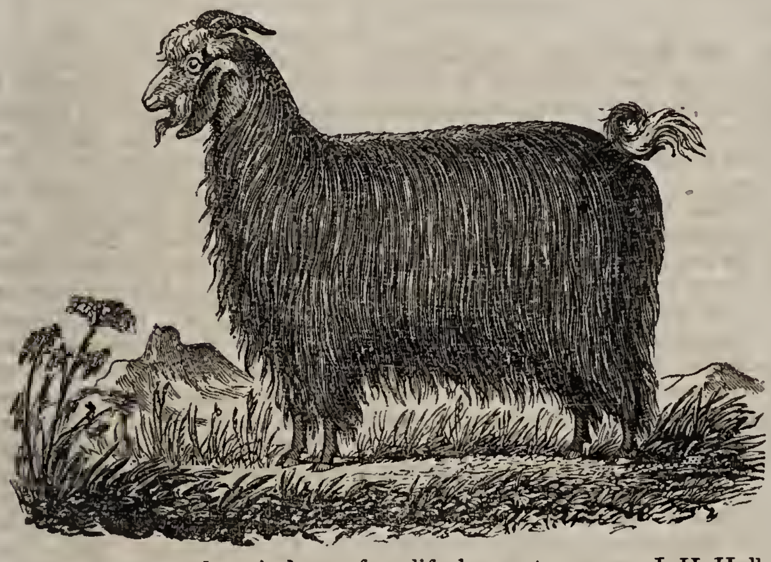
JUDGE BUEL,—SIR,—In the neighborhood where I reside, farmers say that housing stock is injurious; and most of them are in the habit of letting their cattle run out during the winter season, with no shelter from the storm but the lee side of a fence, or a hay stack,—and their food is thrown to them, upon the ground, where a part is trodden under foot, and a part scattered by the winds, over the adjacent fields. Is this economy? And is it a fact, that animals do better thus, than where they are carefully housed, and fed from mangers or racks? I am young in farming, but my experience already tells me that the excuse for this practice is founded in error, and is the natural effect of an idle habit. I have no doubt, that our farmers lose enough in five years, in feed and in the diminished value of their stock, to build good and convenient barns, for all their animals and produce. There is no pleasure, even if there should be some profit, in keeping stock in a continual fast, exposed to dreary storms, and piercing cold. 'Tis abusing the free gifts of heaven, and shows a perverse and thankless heart, not to provide for the comfort of our domestic animals, which are dependent upon us, and through life, and in death, are made subservient to our wants and pleasures. My plan is to shelter all my stock, and feed nothing out doors. My stables are eight feet high, and fourteen feet wide, with glass windows, which are left partly open, except in severe weather, to admit the air, and every animal has a separate stall. My sheep have comfortable shelters, with the privilege of going into the open air when they please, and are fed from racks that do not admit any waste of hay.

I endeavor to have every thing managed in a regular and methodical manner, that nothing may be neglected, or improperly done. The care of my cows is confided to one man, who is instructed in my management and method of feeding. The same is done with my young stock, sheep and horses. My farm requires the constant work of four men, each of whom has an allotted portion of this labor to perform, and is held accountable for neglect or carelessness. It is my invariable practice, to see every animal on the premises daily, and note its condition; and also to ascertain by personal inspection, that my orders are executed with due attention to neatness and economy. By this method every animal gets its proper quantity of food, nothing is wasted, no accident happens, the profits of my stock are increased, my own comfort and enjoyment augmented, and my pride to excel my neighbors gratified. All this, and much more, may be brought about, by a moderate quantity of good common sense, added to a habit of industry and perseverance. I do not mean to say, however, that none but men of ordinary capacity should engage in the humble and despised occupation of farming. I believe that the highest order of intellect, and the mind that could sway the destinies of an empire, might find ample scope for all its powers, in the peaceful and happy pursuits of agriculture.

L. CHANDLER BALL.

Hoosick Falls, Rens. Co. 1836.

ANGORA GOAT.—Fig. 47.



The above wood cut is drawn from life, by our townsman J. H. Hall, from a female Angora Goat, belonging to J. D. Kinnear, who imported her last spring from the flock of Baron D——,* in the neighborhood of Paris. Mr. K. had through his friends obtained a pair, but the buck unfortunately died before reaching our shores. He hopes to be able to procure another pair next spring.

The Angora Goat is a native of Angora, a district of Natolia in Turkey, in Asia, and about the same latitude as Philadelphia. They were first introduced into France some 25 years ago, in order to transfer to that country the manufacture of the Cashmere shawl, and they have succeeded in a great measure, as far as a small flock will enable them to do so.

These Goats are covered with long hair, (sometimes a yard in length,) and also with a coat of fine wool, both of which are sheared in the same manner as we shear our sheep, and then separated; the hair is used for shalloons and other articles of that class, and the wool has only been hitherto used for the manufacture of the shawl, but is of course available for any other woollen manufacture. These animals are perfectly free from the unpleasant smell which is the characteristic of other goats. They are hardy and easily kept, feeding on almost every kind of nutriment usually given to our sheep and cattle. The one in question is thriving and appears to be able to endure the severity of our winters.

Should Mr. K.'s experiment in introducing this valuable addition to our stock be successful, we trust soon to see our wives and daughters wear *American Cashmere Shawls*, as well as American silk.

We invite communications on this interesting subject, from any of our readers who may be acquainted with the animal, its habits, or the manufacture of its wool.

THE FLEECE A GREATER OBJECT THAN THE CARCASS.

Jesse Buel, Esq.—Dear Sir,—In the December number of the "Cultivator" I noticed an article on sheep husbandry, over the signature of "A Subscriber"; and as the writer thereof solicits an argument, and correction, permit me to make a few remarks on the subject.

I differ with him when he says: "that the carcass should be the most profitable"—for the following reason: the price of mutton is generally so low, that the sheep masters would make but small profits from their flocks, should they direct their attention mainly to that object, because the price of mutton, for the last ten years, has not averaged exceeding two cents per pound, to the farmer; while in England, during the same period of time, it has been about ten cents. There they can make mutton their principal object of raising sheep; in this country it must principally be for their wool. I have known mutton sold in this town, Hoosick, at 1½ cts. per pound by the quarter; and it is a well known fact, that thousands of thousands of sheep are annually killed, for the sake of their pelts, the carcasses tried to obtain the tallow, and the meat fed to the swine! Now, should our wool-growers generally change their fine, for coarse sheep, and go to raising them for the sake of their mutton, principally, I ask, what would their profits be, as long as mutton is so low? Would not the price be still further reduced? Coarse wool is brought into this country in great quantities, free of duty; should our farmers therefore enter into the raising of coarse sheep, their wool would be extremely low, and our manufacturers be obliged to draw from foreign countries fine wool to supply their factories, whereby a great amount of money would yearly go out of the country. It is useless for me to tell you, that by far the greatest quantity of wool manufactured in this country belongs to the finer qualities.

The writer asserts that the quality of the mutton of the Saxony and merino, is far inferior to that of coarse sheep. I wish he had told us his reasons why it is so! Now I assert, that it is equal if not superior, for they being smaller, and more delicately constituted animals, the grain of the meat is finer, which in my opinion makes the quality equal, if not superior, to that of coarse sheep.* It is true, their carcass is lighter, but, let me ask, do not the large coarse sheep require more sustenance? I assert that they do! Yet there may be locations—for instance near large market places—where coarse wooled sheep are as profitable—perhaps more so—than the fine wooled; but remote from such places, the expense of driving the mutton to market, would nearly, if not quite, consume the profits. Will your correspondent favor the public with a statement, how much provender the Bakewell, Hampshire Down and South Down sheep daily require? He may, if he pleases, reduce the quantity to hay, as that is the standard by which we generally calculate the expense of keeping sheep.

The writer is evidently mistaken, when he says: "they generally keep their wether sheep five or six years, as they produce the greatest quantity and the finest quality"—"they frequently lose them in consequence of their weak constitution, and their inability to stand the hard winters." I agree with him that they cut the largest quantity of wool, but beg leave to say, that but very few wethers are kept to that age—not one in ten, take the country through; they generally are turned off, at three and four years old. "A Subscriber" must have but limited practical experience when he says: "they frequently lose them in consequence of their weak constitution, and their inability to stand the hard winters." Why has a wether, at the age of six, a weaker constitution than a ewe which partially exhausts her strength by raising a lamb yearly, while a wether's strength is not exhausted at all?—for which reason, I should think, they could stand the hard winters better. I have now a ewe in my flock, originally imported from Saxony, twelve years old, and from which I have raised 10 lambs, and if nothing extraordinary happens to her, I expect to raise one more from her next spring. She has not a tooth in her head, and yet is in good condition. I cannot think that your correspondent was really in earnest, when he says, "that the wethers produce the finest wool." I am a purchaser, as well as a grower of wool, and have found that wether's fleeces are always coarser than ewes fleeces. Every practical wool-grower will concur with me.

---

* The Baron's name we could not decypher.

* I hereby extend my challenge, which some time since I gave to brother "R," to your correspondent, "A Subscriber"—that he may procure the best sample of Bakewell, Hampshire Down and South Down mutton, he can find, and I will meet him with a sample of Saxony or Merino. Both shall be cooked in the same manner; we will select one or more of the most accomplished connoisseurs in good eating, and I will rest the point on their decision.

In conclusion, I may be permitted to say, that it is matter of regret, that some of your correspondents do not sign their real names to what they write; if they did, some of your readers at least would be enabled to judge whether their statements were the result of experience. It is alike due to themselves as well as to the public.

With sentiments of the highest respect, I remain, yours,

H. D. GROVE.

Hoosick, N. Y. January 6, 1837.

ALLEN'S THRESHING MACHINE.

It always affords us pleasure to notice the inventions of genius, particularly when they are calculated to aid and abridge the labor of the farmer. The machine figured and described below is of this description, as we are satisfied from a thorough trial of it on our premises. It deserves attention,

1. *From the small space it occupies.*—The thresher is a cube of two feet square, that is, it is two feet broad, two long, and two high. The whole machine, including the horse power, may be stowed in a light wagon, and transported by a single horse, if necessary.

2. *From the small power required to propel it*—one horse being able to drive it, and only two horses being required under any circumstances. The journal of the threshing cylinder turns upon a friction roller, which latter revolves in an iron box or case filled with oil, which avoids all danger from friction, and renders this part of the machine durable.

3. *From its price*—being from 75 to $100, including horse power.

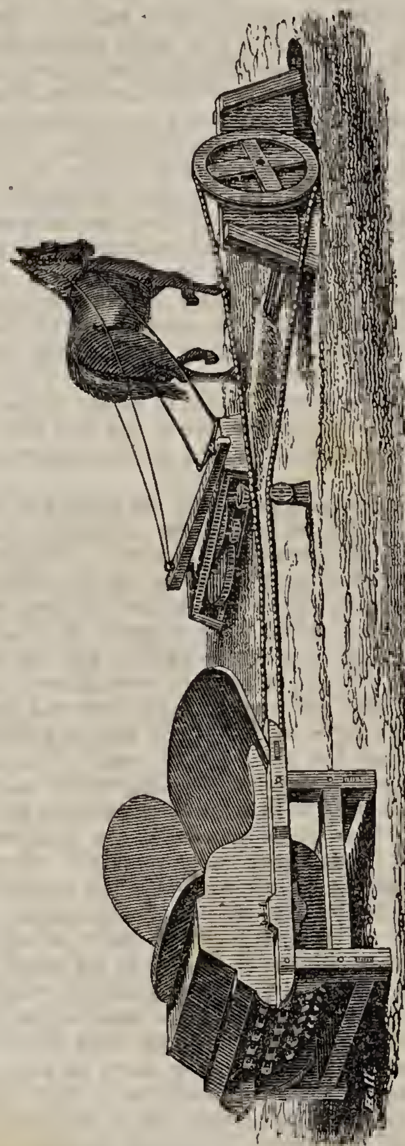


Fig. 47.

It does its work well, and as fast as any machine we have seen in operation. The machines are built by Penton & Benedict, Saratoga Spa, Thomas Eastbrook, Ballston Spa, and C. F. Buckley, Milton, Ulster county. A sample machine may be seen at Thorburn's seed store, Albany.

STRAW CUTTER.

Mr. Buel,—Sir,—I discover in your valuable paper for November, some few strictures from Mr. John Fry, on Mr. Green's straw cutter. Now Mr. Green and Mr. Fry are both strangers to me, of course I have no partiality for or against either of them—only my name is *Fair Play*—and I must say, I think your friend Fry's complaint against Mr. Green's improvement, not cutting the feed short enough to suit him, cannot be a very serious one to those who have so highly recommended it, nor can it be in reality to the principle of the machine, when it is considered that it can be obviated by adding more knives or cutters to the cylinder. I know it may be said this would give the cutters a tendency to choke up in their operation; but this can be obviated by lengthening the cutters, and lessening their projection from the cylinder: or a light spring may be introduced between the cutters, that will recede while the straw is being cut, and pressed on the wooden cylinder and return as the roller leaves it, thereby liberating the cut straw from between the knives. And as Mr. Green would no doubt prefer our suggesting some improvement on his machine, (where no new principle is embraced,) to our finding fault with what has been done, I will say, if the machine was made to receive double width of straw on the feeding apron, and the cutters were secured more permanently to their place, (by the heads that confine them being made much heavier,) it would be a great acquisition to its use for almost any farmer. With these few remarks, I leave Mr. Green's improvement; which (as it is) I consider a cheap and ingenious one, and one that has, perhaps, gained greater celebrity for the time it has been in operation than any one that has preceded it.

As to Mr. Fry's recommendation of another invention, which, for aught we know, (except through Mr. Fry,) is now in embryo, but is to be brought out by his English friend, and christened the "Firth Patent Straw Cutter," appears rather premature, and I cannot help thinking that Mr. Fry and his friends may possibly, (as the saying is,) be counting without their host, or offering ducks before they are catched, or counting chickens before they are hatched.

FAIR PLAY.

New-Lebanon, Dec. 22, 1836.

Mr. Buel,—Dear Sir,—Being a subscriber to your valuable publication, and interested in all that concerns farmers generally, I take the liberty of addressing a few lines to you, chiefly to dissent from some of the positions taken by a Subscriber—in the last No. of the Cultivator, on sheep and sheep husbandry. A Subscriber, I percieve, is an advocate for breeding coarse wooled sheep, because he thinks their carcass better for mutton. I admit, that there are growers of Saxony and merino wool, who aim at raising fine wool at the expense of quantity, and also of the size and form of the animal. These are doing themselves and breeders of *good* fine sheep great injustice by bringing them generally into disrepute. Perhaps some farmers so near market, that they can take all the advantage to be derived from their location to dispose of their lambs and mutton, at high prices, can breed the South Down or Bakewells to the most advantage, but, that farmers generally can do so I do not believe, and for my reasons for this belief, I will state what I know of the Saxony and merino sheep, having been a breeder of them for nearly ten years, and also living in a community of wool growers, some of whom have been engaged in it twice that length of time. Our flocks of Saxony or merinos cut from 3 to 4½ pounds per head—this bringing from 68 to 80 cents per pound, netts as much or more to the grower as any flock of Bakewells in my knowledge. Our grass fed wethers bring from 3 to 4 dolls. per head, the culls from our ewes about the same; and our lambs from 2 to 3 dolls. per head. I doubt whether a Subscriber knows a flock of Bakewells (which he thinks the best) for which he can say as much. A Subscriber says they, the Saxons and merinos, frequently die, from their inability to stand our hard winters. In reply to this I would say, that our best shepherds even in our last hard winter did not lose more than one and two from a hundred. I agree with a Subscriber perfectly in urging breeders to procure well bred bucks. I know some farmers who breed from ill shaped, long, bare legged, bare faced bucks that will not cut more than 2½ lbs. of wool, and only, because they can obtain them at a small price. Such farmers I think must breed without pleasure or profit. A Subscriber says, that two breeds cannot be kept distinct on one farm; I believe he is mistaken, for I am acquainted with a flock of merinos and Bakewells kept so, the breeder of which informed me he found no difficulty in keeping them so—that his merinos cut as much wool as his Bakewells, and that the average weight of his whole flock was 4½ lbs. He has one merino buck that cuts 8¾ lbs. of washed wool. In conclusion, I wish to urge upon farmers the necessity of raising vegetables for their stock. My farm horses eat the Ruta Baga with great avidity, and thrive remarkably well on them, and when cut up with a machine (which we have) and mixed with cut hay or straw, stock may be kept with one half the expense, that they usually are. I am yours respectfully.

A WOOL GROWER.

VEGETABLE CUTTER.

Mr. Buel,—Much attention has been paid for the last few years to the culture of roots for feeding stock, &c. At first some difficulty occurred in sowing the seed, until the drill was introduced, which diminished the labor to a pastime.

Where a large stock was fed, much time and labor were spent in slicing or cutting the roots suitable for feeding. At first the *spade*, *snick* and *chopper* were brought into requisition, but did not operate satisfactorily. Other machines have since been tried, such as the *grater* and horizontal knives, operated by a lever; but "Melishe's Vegetable Cutter" bids fair to eclipse the whole.

It consists of a box seventeen and a half inches long, twenty-two inches wide, and about four feet high, which answers for a hopper above and a receiver below. Near the centre of the box is a frame bearing a circular plate, or wheel, of cast iron, mounted on a horizontal axis, to which the crank is attached. This wheel, carries three knives or cutters, set parallel to the face of the plate, and radiating from the centre. The vegetables press against the knives, and their own weight is sufficient to keep them within the stroke of the knife.

The following statement is from a gentleman who has had one of these machines in operation for sometime, and recommends them highly. I have seen one in operation—it sliced potatoes with great ease and rapidity.

"I have had one of 'Melishe's Potato Cutters' in use, and consider it one of the most useful machines ever invented, and think no farmer, who values the lives of his cattle, or his own interest, should be without one. They will cut more potatoes into thin slices in one hour, than a man could cut with a knife in two days. I find that potatoes cut in this machine will boil soft in about half the time of whole ones, thereby making a great saving of fuel and labor. The machine cuts potatoes, turnips, cabbage stumps, (squashes and pumpkins when cut into quarters with a spade,) with the same facility and ease that it does potatoes."

The above notice is given to answer the many queries made—"which is the best implement or machine used for cutting or slicing vegetables for feeding stock, &c.? and where can they be had and at what price?"

A few of these machines are now for sale at the Agricultural Warehouse of Wm. Thorburn, No. 317 North Market-street, Albany—price $10. C. N. BEMENT.

INQUIRY RESPECTING GRASSES.

Jesse Buel,—Please state in the Cultivator the kinds and quantities of grass seeds our most experienced and best informed practical graziers would prefer to sow on a meadow fallow, previously prepared, and designed for a permanent grass sward, for grazing and mowing.*

I have been in the practice of sowing my meadows early in September, with timothy, and a little herd grass,† and red clover. And while, as I think, timothy will give way to spear or green grass (as we call it) and white clover, much more easily than herd grass, which will retain its hold firmer and longer; yet I generally find when the timothy takes well at first, it overpowers and smothers the herd grass. Which latter kind I am disposed to think, from experience and observation, is better, both as a grass and as a hay, for fatting cattle and feeding cows, than timothy is; although I am aware that timothy is by many preferred for horses, especially in our large cities—yet, still some have doubts as to its superiority or even its equality for that use either. Under these views, I have sown my meadow fallow this last fall with herd grass and a little timothy and red clover.

I think the quality of the soil, and its inclination to produce spear or green grass, and white clover, (a mixture of which I consider preferable for grazing, to any other kind, and if I am wrong I wish to be corrected) ought in a degree to be consulted, and perhaps the climate and situation.

I observed in No. 4 of the current vol. of the Cultivator, a table of grasses experimented upon at Woburn. Yet the soils upon which the different kinds grew, appear to have been very different, and in very different states of fertility. I should also think that the same kind of grass, growing on the same soil as in the previous year, would likely be not only different in quantity, but also in its per cent of nutritive matter, owing to various causes in the season. And while one season or one *country* might be favorable to an increased burthen or quality of one kind of grass, the same season or the same *country* would not so well serve another kind of grass; which if true, go to show that notwithstanding it is a very interesting table, and contains much useful information, yet we must not rely too much upon it. The well informed and scientific agriculturist, that is really and thoroughly a practical one too, can often ascertain important results, when others cannot. *Jan.* 7, 1837. N.

FARM ACCOUNTS—PRODUCTS OF A FARM.

J. Buel, Esq.,—Sir,—Having been a constant reader of your valuable paper from its commencement, and having been amused and instructed from the perusal of it, especially from original communications upon practical farming, statements of products, &c.; and having heard a gentleman in an agricultural address in this county some years since say, "It is time that farmers leave off guessing, and attend to their business systematically, that they may know their income," &c.—I have once or twice since began to keep an account of the products of my farm, but have failed to go through the year. This year I began early in the season, and have kept an account of the principal articles produced, and their estimate at about the common market price in this vicinity. But as I am a Yankee, I must be allowed the privilege of "guessing" at a part. The reason of my communicating to you the result of my labors, is not that I expect that I have outdone every body else, for I believe that many farmers in this region have produced more from the same number of acres than I have, as some of my crops were very poor; my orchard and a few thousand silkworms almost wholly failed. But I have thought that the publication of the products of farms might influence some of those who occupy land and farm by guess, to use more exertion; and may probably induce some young men to turn their minds from the fancied gains of speculation to the slow, but substantial, income of good farming. And in this way, and no other, can we compare our own advantages of location with our brethren at a distance. And since there is such an itching desire for removal and the praries of the west, it would be well for many of them to know that they are well situated.

My farm contains about 150 acres of land. I improve about 100 acres, the remainder is in wood; some of the land has been cleared of wood thirty-five years, and farmed without much system for a number of years; now some of it is in tolerable cultivation, though very little in a high state. I shall now proceed to give the items of produce and their estimate. I am thus particular, that every reader may see for himself, and imitate the example if he thinks proper, and commuicate the same for the benefit of others.

1,088 lb. of maple sugar, at $10 per cwt. is..........	$108 80
Mulberry trees sold for cash, ...	143 75
35 lb. of wool, at fifty cents per lb.	17 50
4 veal calves, at $2.50 per head, ...	10 00
1 killed at four days old, skin sold for	50
5 lambs raised, at $2 per head, ...	10 00
5 calves raised, at $4 per head,.....................	20 00
6 pigs sold young, at $1 per head, ...	6 00
8 pigs raised, at $3 per head, ...	24 00
50 tons of hay, at $7 per ton, ...	350 00
1 ton of hemp,..	11 72
16 bushels of peas, at $1 per bush., ...	16 00
59 bushels of rye, at $1 per bush., ...	59 00
68½ bushels of barley, at 62½ cents per bush., ...	42 81
70 bushels of wheat, at $1.50 per bush.,...............	105 00
Flax in the bundle and seed, ...	67 66
80 bushels of apples, at 25 cents per bush.,............	20 00
1,535¼ lb of cheese, at $8 per cwt., ...	122 82
280 bushels of potatoes, at 25 cents per bush., ...	70 00
200 bush. of ruta baga turnips, at 25 cents per bush.,..	50 00

---

* We invite an answer from our graziers. The truth is, we believe this subject has not received sufficient attention among us. There is little danger of over stocking, or of mixing too many kinds, except on account of the cost of the seed, because the soil will only carry a certain quantity of plants; and if there is seed enough, and the ground is in good condition, there will none of it naked. We sow 10 lbs. of clover and 6 or 8 quarts of timothy to the acre.—*Cond.*

† Timothy *(phleum pratense)* is the herds grass, and herds grass *(agrostis vulgaris*, of Eaton, and *A. stricta* of Mich.) is the red top of the eastern states.

200 bush. of ears of poor corn, at 25 cents per bush., ..	50 00
2 bushels of white beans, at $1.50 per bush., ...	3 00
3 bushels of onions, at 75 cents per bush., ...	2 25
200 bushels of oats, at 50 cents per bush., ...	100 00
1,482 lbs. of pork, at $7 per cwt., ...	103 74
108¾ lbs. of butter, sold at $18 per cwt., ...	19 54
Growth on ten head of two years old cattle, ...	80 00
Growth on five head year old cattle, ...	25 00
Total, ...	$1,639 09

I would remark, that my young cattle, with the exception of one, has pastured on the commons; but as an offset, I have pastured a span of horses, till about the 10th of June, three cows and thirteen sheep all summer, two pair of oxen and one cow about one month; all the butter and cheese eaten in the family, the butter on hand, garden vegetables, &c. not hrought into this account. And I consider my mulberry yard worth as much as it was last spring before the sale of trees. I am aware that various opinions will be manifested by those who peruse this statement. Some will think it falls short of what it ought to be, while others may think it extravagantly large. The fact is, my wheat crop was no more than half a good crop, and my corn almost wholly lost, my beans, onions and peas poor, flax not so good as usual. The loss of my wheat and corn I attribute in a great measure to bad management. My wheat ground fitted too wet, my seed corn bad and planted too late, which left it wholly exposed to the early frosts.

There are other substantial reasons why farmers ought to know the value of their products; in this way they may ascertain the value of their lands. It is commonly supposed that land is worth as much as money, therefore, if your land will pay for cultivating and the interest, that is the real value of your land. For instance, you value your farm at sixty dollars per acre, it must pay the cultivation and repairs, and produce an income of seven per cent. Another reason is, that we may know what branches of farming are the most profitable. Dairymen commonly know very nearly their produce, while those who have tillage of various kinds, are ignorant of the value of their products, and consequently suppose their neighbors are going ahead of them, and they lose no time in converting a good tillage farm to grass wholly, either for the dairy or sheep entire. I would query, is not this one reason of the scarcity and high price of bread stuffs? And under existing circumstances, whether we had not better put the best of our tillage lands in high cultivation, and pursue the culture of wheat, corn, roots, &c. which will support our cows, and our sheep, and our families, while our cows, sheep and young cattle will support our farms? ASA CARTER.

Champion, Jefferson Co., New-York, Dec., 1836.

STALL FEEDING—MANURE—RUTA BAGA.

J. Buel,—Sir,—I have been a subscriber to your agricultural paper for the past year, and always feel rejoiced when the day of its reception arrives. I feel so much interest in my profession, that it is pleasing to know able men sometimes contribute their experience and knowledge to the world, through the channel of periodicals. Yet I am sometimes constrained to smile at their want of foresight, when treating of any particular subject on agriculture.

Manures and green crops are, to a farm, the two *indispensables*, without which no poor farm can be recruited, or good constitutioned land be "kept up." A correct estimate of the value of the former seems to be but little considered in the view of most farmers, though all will admit it to be of the utmost importance. Our farmers, too, think too much of the opinion of Europeans, without exercising their own judgment. I do not wish to condemn British husbandry; far from it; I only desire that our own agriculturist may depend more on the dictates of nature. If she is rightly followed, all agricultural proceedings will be perfect. A communication on "Winter Stall Feeding" is, in my opinion, the wrong way to fat cattle profitably in this country. If nature ties her bullocks by the neck, I will then admit it to be correct. English authorities are quoted who ought to know, and do know, how to fat cattle; but, sir, bear in mind, we are not in England. Providence here provides the animals with a coat sufficient to stand the severities of our winter.* In our western wilds, thick woods, whose leaves hang till spring opens, protect them from the rains and winds—all that is necessary in our Atlantic states. Good food, good buildings, and sheds exposed to the south, sufficiently protected from our cold winds and driving rains, up to their knees in clean litter, is the only way to fat cattle in America. Give cattle all this, they will not move about more than is consistent with a healthy state of body. Confine them in stalls twelve months, they will have the liver complaint, and perhaps some other disease incumbent upon confinement. All domestic animals, when fattening, will generally lie down after eating, and keep sufficiently quiet to admit the process of "taking on fat" to go on as fast as habits, constitution, &c. of the beast will allow. But the great point to be gained, even admitting that loose cattle will consume one-third more food, to obtain the same weight of beef, (as for destroying food, that is the master's fault, not the animal's,) you must bear in mind, that two-thirds more manure are made by proper management, over stall feeding. A steer or other animal ought to manure from two to two and a half acres per year. This is not theory, it has, is, and can be done again. Stall feeding will not do one-half of this. When farmers can see far enough ahead to combine two or more qualities together, there will be some hopes of agriculture improving with rapid strides.

I am glad to find the Swedish turnip has got into vogue. I hope farmers will not be disappointed, or too sanguine respecting its comparative value with corn. The two combined are by far the best and quickest mode of fattening. Two bushels of Swedes are not worth one of corn. I was educated with a turnip grower; have always considered them the staple of cattle crops; but in point of nutriment would be willing to exchange four of turnips for one of corn. Another great advantage in the turnip, is the increase in the barn yard. Although cattle do not consume one-third as much fodder, and often refuse drink, the manure heap is increased one-half over dry feeding, and is infinitely better.

My turnip crop last year, seven acres, and that in a thickly planted orchard, paid me $23 per acre, and fed seven head of stock, and eight pigs, until April. What crop pays better? This year, for the first time during my agricultural experience, it has been a total failure, not producing sufficient to pay the expense.

You will find me but a poor writer, but as I write from pure motives, and a desire of imparting what I know, as the result of strict observation and experience, must excuse errors, &c.

Yours, &c. A. B. C.

New-Jersey, January 8, 1837.

---

* Admitted, so far as regards health, but not so far as to favor the propensity to fatten. Providence has provided neither winter food nor shelter for neat cattle in lat. 42; they are not indigenous to this climate, and must depend on man for aid. Admitting that open sheds and exercise are most conducive to the health and hardiness of stock cattle, it does not follow, nor do we think that such is the fact, that they are most favorable, to the conversion of food into flesh.

RECEIPTS.—We have received payments for the number of subscribers indicated below, from the 30th Nov. to 20th Jan. inclusive. Numbers under ten not noticed.

Post-Offices.		Post-Offices.		Post-Offices.	
*Alexandria, D. C.	19	Durham, Greene,	12	Madisonville, Ky.	11
*Berlin, Rens.	26	Denton, Md.	11	Mooresville, Ia.	13
Braintree, Mass.	11	Eaton, Madison,	10	*Northampton, Mass	57
Brookhaven, Miss.	11	East Fairfield, Ohio,	11	New Market, Va.	11
*Brooklyn, Con.	23	*Front Royal, Va.	33	*New-York city,	213
Bellville, Ill.	24	Fort Wayne, Ia.	25	New-Lebanon, Col.	10
Ballsville, Va.	11	*Fincastle, Va,	33	Pittsford, Vt.	11
*Brockville, U. C.	48	*Gt. Barrington, Mas.	13	Ridge Prairie, Ill.	16
Burlington, Vt.	17	Hillborough, Md.	11	Shaftsbury, Vt.	29
*Catskill, Greene,	28	Hartford, Con.	19	Salisbury centre, Her.	19
Coffee creek, Ia.	11	*Hamilton, Mad.	21	Stamford, Con.	16
*Canterbury, Or.	13	*Johnstown, Mont.	27	*Stuyvesant, Col.	15
Cincinnati, Ohio,	16	Lisbon, Con.	11	*Troy, Rens.	73
*Charlestown, Va.	55	*Lansingburgh, Rens.	103	*Terre Haut, Is.	40
*Centreville, Md.	33	Mendon, Monroe,	11	*Utica, Ia.	23
Carthage, Ill.	22	Millville, Ky.	11	*Windsor, Broome,	24
*Damascoville, Ohio,	23	Milton, Ulster,	22	*Watertown; Jeff.	35
Durham, Con.	11	*Murfreesboro', Ten	35	Windham, Con.	11

* Including former payments.

PRICE CURRENT.

ARTICLES.	New-York. January 17.	Boston. January 20.	Philadelphia. January 17.	Baltimore. January 17.
Beans, bushel, . .	2 17	1 75— 2 25	1 80	1 75
Beef, best, cwt. .	6 50— 7 00	7 25— 7 50	7 00	6 00— 8 00
Pork, ...	9 00—11 00	11 00—12 00	10 00	7 00— 8 00
Butter, pound, .	25— 28	22— 23	18— 20	25— 37
Chese, " . .	8— 10	9— 13	9— 12	
Flour, best, bbl. .	12 00	13 00—13 25	11 50	10 00—13 00
Wheat, bushel, .	1 90— 2 00	1 98— 2 00	2 40	1 25

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.